



Financial literacy and advice perceptions among UK higher education students: an ethnicity tale?

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Abstract

Although considerable efforts have been made in many countries to raise the financial literacy of those from disadvantaged backgrounds, it is unclear whether these are having an effect. This is particularly the case for those of ethnic minority background, who may suffer from other disadvantages. This study examines the financial literacy of students from two universities in the East Midlands region of the UK. It considers the role played by ethnic background. It is found that significant differences in financial literacy remain between the White majority and particular ethnic groups. In part, this appears to reflect their perceptions of the types of decision they see financial literacy relating to. Some ethnic groups saw financial literacy as being of more relevance for larger, less frequent financial decisions, but saw less connection, and relevance, to the day to day choices they had to make. Ethnicity also potentially has an indirect effect, as informal sources of advice, and those that promote a financial market perspective, tend to be valued more highly. The implications are worrying given that the respondents are the more highly educated independent young members of the population. Current attempts to assist the development of financial literacy therefore appear to be failing those from some ethnic minority groups. This will leave them at a continuing disadvantage, unless interventions can highlight the day to day importance and value of financial literacy.

Keywords Financial Literacy · Disadvantage · Financial Advice · Ethnic Minorities

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1 Introduction

In developed countries there remain significant gaps in the success of ethnic minority households in terms of earnings, wealth (Boshara et al. 2015), and broader well-being, compared to the majority ethnic group. For example, in terms of wider well-being and prosperity, US evidence suggests that relative to White workers, African American workers: (i) are less likely to own a car, (ii) experience higher unemployment rates and longer unemployment periods, (iii) earn lower wages, (iv) spend more time commuting to work, (v) travel less miles to go to their jobs, and (vi) search for jobs in a smaller area (Stoll and Raphael 2000; Gautier and Zenou 2010). This is partly because although discrimination on the basis of ethnic background may be illegal, this does not deal with the existing and self-perpetuating disadvantage faced by members of these groups (Li and Heath 2020). Many ethnic groups are concentrated in more disadvantaged areas and this means the access of members of these households to education and social networks is affected (Peters et al. 2019). In particular, one factor that may limit their ability to achieve greater career and financial success is limited financial literacy (Salinas and Hidrowoh 2018).

Britt (2016) discusses how financial decisions may be influenced by our attitudes, which tends to be influenced by a closely related group of cultural issues, including family, gender, socio-economic status and importantly for this study ethnicity. International studies have found mixed evidence that those from ethnic minorities have lower financial literacy. This reflects the fact that deprivation, plus reduced experience, and engagement with financial decision making, is often found to be the cause of this lower financial literacy (Frijns et al. 2014). It is also the case that individuals can choose to invest in improving financial literacy, but some do not for various reasons (Mandell and Klein 2007), such as choosing to rely on partners to make decisions (Ward and Lynch Jr 2019). However, as Lusardi et al. (2017) show, those with greater education gain the most from investing in financial literacy. This would help to explain why groups clustered in more deprived areas with less access to quality education, such as those from ethnic minority backgrounds (Al-Bahrani et al. 2019), are less likely to make the choice to invest due to limited benefits, as well as restricted access to relevant experiences and sources of advice (Hanson and Olson 2018). Once deprivation is controlled for, some studies have found the ethnic effect to disappear, but for others it remains. Where it remains, fewer studies have sought to examine why this might be the case.

This study examines whether students at two universities in the East Midlands region of the UK, display any evidence of financial literacy gaps between ethnic groups after controlling for other influences. Those included in the analysis are at the point where many will be or be joining or creating new households, as they leave home to study, or where studying while living at home, will be doing this in the near future. They are therefore, at a critical point where any limitations on their financial literacy could have lasting influences on their lifetime well-being. This adds to the knowledge that is largely obtained from US studies, to see if such gaps exist in the UK. Where the study also contributes is in seeking to establish whether different perceptions of financial literacy, or the source of advice sought about it, can explain any lingering differences. Insight into these will help to develop policy approaches

that will possibly contribute to reducing the disadvantage suffered by these groups, and their households.

Given that members of ethnic minority groups are likely to suffer from other forms of disadvantage, that is expected to affect financial literacy, a multivariate analysis approach is adopted. The aim is to account for both individual and family influences to establish whether any differences remain between ethnic groups. The remainder of the paper is structured as follows. Section 2 reviews the existing literature, which firstly considers what is meant by financial literacy. Based on this, studies that examine the importance of financial literacy of different types for social mobility and well-being are examined, before considering what evidence there is that particular groups might be excluded, and why this is the case (Section 3). Section 4 outlines the survey data used to examine the impact of ethnicity on financial literacy, and the analysis approach adopted. The results are presented in Section 5 and Section 6 draws conclusions and implications for policy.

2 The role of financial literacy and differences in its distribution

There are a number of different definitions of financial literacy (Remund 2010), but it is accepted that it is important for individuals and their life chances (Drever and Else-Quest 2021). This means that in order to understand how to help disadvantaged groups to achieve greater social advancement and integration, it is crucial to consider the different forms that financial literacy may take, and what decisions it may affect. In order to gain this insight, this review of the literature will firstly consider the various definitions of financial literacy used in different studies and then how these affect life and career choices. The final parts of the review will consider those studies, that have suggested why particular groups may suffer from perpetually lower levels of financial literacy, and what evidence there is for these differences. Hypotheses with regard to the financial literacy of those from ethnic minority groups, will be developed from this literature in Section 3.

2.1 Defining financial literacy

Remund (2010 276) suggests that while financial literacy is accepted as relating to ‘...the knowledge, skills, confidence and motivation necessary to effectively manage money.’, there are an expanding number of definitions which confuse its study. He calls for a clearer and broader definition, which may help to consolidate the field, but it is also true that different aspects of this overall concept of financial literacy may raise particular issues for some activities, or groups in the population (de Bruin et al. 2010). For example, it is assumed to relate to both short and long run financial management (Remund 2010). This means it can relate to day to day financial management skills, that should have some relevance for all at all points in individuals’ lives (Hilgert et al. 2003). However, it will also relate to those decisions relating to retirement, that may come down to a relatively small number of big decisions at key points in their lives (Lusardi and Mitchell 2007; 2011). It will then be essential that appropriate methods of measuring these different forms of financial literacy are used (Huston 2010).

One difficulty with utilising previous studies of financial literacy is that many do not provide a definition of financial literacy. This means that often they are attempting to measure the wrong thing, or only capture part of what they intend. Frequently studies interchangeably use the terms financial literacy and financial knowledge, whilst the latter is just one component of the former (Huston 2010).

Definitions which have been suggested include:

1. The ability to make informed judgments and to take effective decisions regarding the use and management of money (Noctor et al. 1992; Beal and Delpachitra 2003).
2. The ability to read, analyse, manage, and communicate about the personal financial conditions that affect material well-being. It includes the ability to discern financial choices, discuss money and financial issues without (or despite) discomfort, plan for the future and respond competently to life events that affect everyday financial decisions, including events in the general economy (Vitt et al. 2000; Cude et al. 2006).
3. A person's ability to understand and make use of financial concepts and personal finance-related information (Servon and Kaestner 2008; Huston 2010).
4. The ability to use knowledge and skills to manage financial resources effectively for lifetime financial security (Jump\$tart 2017).

When operationalizing financial literacy, there is often a broken link between theoretical work that indicates that it should relate to the skills and abilities involved in making decisions to manage your own financial affairs (Alba and Hutchinson 1987; Remund 2010), and the actual measures which capture a knowledge of financial concepts such as compound interest rates (Fernandes et al. 2014). Xiao et al. (2014) also highlight the potential differences that may be present when comparing objective and subjective measures of financial knowledge, where subjective knowledge may also capture the self-confidence.

In this study we draw on a range of items to measure financial literacy. In combination these can provide a measure capturing both an ability to manage financial decisions, but also a knowledge of financial concepts. In addition, unlike many studies, we do not wish to just define financial literacy, and see how well different ethnic groups compare to this imposed measure. Instead, as discussed below, we are interested in establishing whether different ethnic groups define financial literacy in different ways, and whether the sources of advice and support they seek out and value impacts on this perspective.

2.2 The impact of financial literacy on social and economic advancement and well-being

Studies, such as Lusardi and Mitchell (2007) and Lynch et al. (2010), show that financial planning has a big effect on net wealth through better credit ratings, and savings as individuals approach retirement. Those with lower financial literacy are less likely to use tools to plan for retirement and access expert advice, but instead rely on informal sources, such as friends and family, having potentially profound affects for themselves and their households (Lusardi and Mitchell 2011).

Lusardi et al. (2010) found that young people struggled to correctly answer questions relating to inflation and risk diversification. Decisions based around pensions, and other savings and investments, are therefore likely to be less informed or potentially put off due to a lack of certainty. Boisclair et al. (2017) draw on internationally comparable survey evidence on financial literacy and retirement planning in Canada, and find that 42% of respondents are able to correctly answer three simple questions measuring knowledge of interest compounding, inflation, and risk diversification. Where this knowledge is lacking and risk tolerance is low, preparation for retirement is likely to be reduced and delayed, limiting the time available to accumulate sufficient wealth (Lusardi et al. 2010; Boisclair et al. 2017; Chatterjee et al. 2017).

Looking at the reasons behind difficulties in making optimal decisions, Howlett et al. (2008) find evidence that consumers who express higher levels of future orientation are more likely to participate in a retirement plan. Importantly for the current research, de Bruin et al. (2010) note that those from more disadvantaged backgrounds, focus primarily on paying future expenses, rather than investing for the longer run, and those with lower financial literacy struggle to estimate inflation and plan correctly for the future.

US evidence suggests that one of the mechanisms that limits the accumulation of wealth is a poor debt literacy (Lusardi and Tufano 2015). It is estimated that around only a third of the population understand compound interest, and this translates into the use of more expensive debt and overindebtedness as a consequence of this. A poor understanding of risk diversification may also mean that individuals avoid making investments that they don't understand, and worry about losses, leading to underexposure to the stock market for example (Haliassos and Bertaut 1995; Lusardi and Mitchell 2011). Broader consequences of lower financial literacy can include mental health effects, where avoiding anxiety about life in old age is reliant on social security, rather than it being possible to alleviate this anxiety through asset accumulation (Kadoya et al. 2018).

Understandably in a variety of contexts, the consequence has been found to be lower asset and wealth accumulation over time (Koomson et al. 2022). In the US at least, these outcomes seem to be unevenly spread across the population. Boshara et al. (2015) find that those of Black ethnic background display what they term lower 'financial health', with less liquid assets, outstanding credit card balances, and lower debt-to-income ratios due to working largely on a cash basis. Interestingly, membership of an ethnic minority group alone does not result in poorer outcomes. Those of East and South East Asian background are found to achieve better financial health. However, for a Canadian sample, those from minority backgrounds, along with the young and the old, women, and less highly educated, display lower abilities and knowledge relating to interest compounding, inflation, and risk diversification (Boisclair et al. 2017). A Ghanaian sample indicated that financial literacy training boosted asset accumulation in both male and female headed households, but the effect was less strong for female headed households (Koomson et al. 2022).

These struggles to value investments are not just limited to the financial markets, but there is also evidence in the US that students from Black backgrounds do not appreciate the monetary returns of education to the same extent as their White counterparts, potentially having even greater long-term consequences for the

households they will go on to form (Mandell 2008). While the US high school graduation rate has risen steadily over the last decade, school-leaving or “dropout” remains a predominant issue in urban communities where low-income and racially/ethnically minoritized people are concentrated. This has left many young adults with limited options, but to take insecure and low paid ‘self-employment’, associated with zero hours contracts (MacDonald and Giazitzoglu 2019). Poor early experiences in the labour market puts young adults at risk for long-term hardship, such as chronic joblessness, persistent poverty, poor health and well-being, and jail (Kahn 2010; Daly and Delaney 2013).

2.3 Mechanisms that lower financial literacy for disadvantaged groups

One source of financial literacy is through experience of undertaking financial activities. Consistent with this, Frijns et al. (2014) examine the impact of financial experience on financial literacy for New Zealand students, and find a positive and causal effect of financial experience on financial literacy. This can result in those living in particular areas, or members of particular groups, having lower financial literacy. For example, as old fashioned gendered roles in the household tend to reduce the involvement of women in financial decision making, this results in lower financial literacy for women (Fonseca et al. 2012). Consistent with this, Chen and Volpe (2002) find lower financial literacy for female students is associated with a lower interest in acquiring these skills. A result that may in part also be driven by parents’ influence on their children’s financial knowledge, which was found to vary depending on the gender of the children (Chambers et al. 2019). Ward and Lynch (2019) show that as well as lowering financial literacy skills, reliance on others to make decisions also reduces the ability to search for relevant information. This could lead to other groups experiencing a similar self-fulfilling prophesy, whereby lower expectations of having make such decisions, based on background and parental experience, lead to less interest in acquiring the relevant skills, and thereby limiting their own potential to engage in such decision making (Bottazzi and Lusardi 2021).

Generally, it is those from more disadvantaged backgrounds such as those: with lower education, from ethnic minority groups; and with lower household incomes, who are less likely to have banking facilities (Hogarth et al. 2004). This means the wealthy would be expected to possess higher levels of financial literacy than those from more disadvantaged backgrounds (Monticone 2010; Stolper and Walter 2017; Lusardi et al. 2017). In the US this could lead to an uneven distribution of financial literacy across ethnic groups as, for example, many Hispanics do not hold even basic assets, such as checking accounts (Hogarth et al. 2004).

2.4 Empirical evidence for differences in financial literacy by ethnic minority groups

In general, it has been found that those coming from lower socio-economic groups display lower levels of financial literacy (Mandell 2008; Boisclair et al. 2017). Monticone (2010), using data from Italy, finds evidence that greater household wealth does boost financial literacy, but the effect size is small. The question is whether those from ethnic minority backgrounds are at an even greater disadvantage,

or whether studies that find they display lower financial literacy are just capturing this background effect.

Previously US studies have found that those from ethnic minority backgrounds displayed lower levels of financial literacy (Lusardi and Mitchell 2007; 2011; Lusardi and Tufano 2015; Al-Bahrani et al. 2019). This result also applies when considering particular groups by education and age, such as high school students (Mandell 2008). Lusardi et al. (2010) find that those of Black and Hispanic background display a lower knowledge of interest rates, inflation, and risk diversification. However, much of these differences disappear and become insignificant when controlling for other background variables, suggesting that deprivation rather than ethnicity is what is key.

A worrying result found by Al-Bahrani et al. (2019) is that not only are those from ethnic minorities likely to have lower financial literacy, but that education to increase financial literacy has a greater positive effect for Whites, and therefore results in a further widening of the gap. This poor performance of financial literacy education for those groups most in need of it, may reflect high levels of attrition in more deprived areas (Reich and Berman 2015). An alternative argument is that many work on a need to know basis, reducing the extent that skills are absorbed, and perhaps importantly practiced (Ward and Lynch 2019).

This means that ethnic minority members, who are already more likely to have lower levels of income and wealth, experience a widening of this gap over their lifetimes due to a deficiency in financial literacy (van Rooij et al. 2012; Lusardi and Mitchell 2011). As noted above, there are conflicts over the source of this disadvantage. Lusardi et al. (2010) suggested that differences in financial literacy can be attributed to deprivation, rather than ethnicity, implying that deprivation lowers financial literacy, and then the welfare of these groups. However, Hamilton and Darity (2017) suggest that poorer financial choices can be attributed to structural factors and discrimination that ethnic minorities are faced with rather than lower financial literacy, thereby signalling more direct deprivation and ethnicity impacts exist. This may imply that financial literacy does not play a mediating role in this relationship.

3 Hypotheses developed

Although the literature reviewed above provides some insights into the impact of ethnicity on financial literacy, a number of gaps are present. In particular a vast majority of the studies are located in the US, and given the role played by context and structure factors (Lusardi et al. 2010; Hamilton and Darity 2017), it is unclear whether these will be applicable to the UK. In addition, results were not identical for all ethnic groups, with the East Asian group tending to 'thrive', but Blacks and Hispanics 'struggle' (Chen and Volpe 1998; Boshara et al. 2015). A similar finding would therefore not be unexpected for the UK where studies have previously found differences in business engagement, and educational success, for different ethnic minority groups (Thompson et al. 2010). These patterns may be self-perpetuating due to household effects, where low parental involvement in financial decision making reduces expectations of undertaking such decisions in the future, and lowers interest in acquiring such skills. This might, for example, lower financial literacy of those of

Black ethnic background in particular in the UK, as this group traditionally have lower levels of business ownership and entrepreneurship, but those who do may have higher quality businesses (Daniel et al. 2019).

Further, the literature above clearly demonstrates that members of ethnic minorities will tend to have lower financial literacy due to the greater likelihood of being from deprived backgrounds (Lusardi et al. 2010). However, it is unclear to what extent this would apply to a group of relatively young well-educated members of the population, whose experience would be through others rather than their own.

From the literature it is suggested that much of the ethnic effect on financial literacy will be due to the deprivation (Ofosu-Mensah Ababio et al. 2021), and the experience they gain from their parents (Hanson and Olson 2018¹), rather than directly due to their own ethnic background. This means that the hypothesised relationship between ethnic minority membership and financial literacy will alter depending on the controls included. To reflect this a set of hypotheses are generated.

It would be understandable if those from disadvantaged backgrounds had less opportunity to learn from observation. As ethnic minorities are disproportionately found in these groups, when not controlling for other context factors, the first hypothesis can be developed.

H1a: Students of ethnic minority backgrounds will possess lower financial literacy than White British Students.

Given that deprivation is perceived to be the leading cause of this, it would be expected that any difference might become insignificant, after controlling for household income.

H1b: No significant difference in financial literacy will be found between Ethnic Minority Students and White British Students after controlling for household income.

As Chen and Volpe (2002) note, the student population is not typical of the population as a whole in terms of financial literacy. Young people of ethnic minority background are underrepresented in higher education (Carter 2006). This means it is possible that this effect may be even more pronounced, as a self-selecting group of individuals with more highly educated parents from these groups may enter higher education. This would lead to a positive effect from ethnic minority membership before accounting for parental education.

H2a: Ethnic Minority Students will display significantly higher financial literacy than White British Students.

Once parental education is controlled for this self-selecting mechanism should disappear.

¹ This study hypothesises that family communication patterns will be connected to financial knowledge, specifically that college students from a conversation-oriented family will do better on a quiz of financial knowledge than those from a conformity-oriented family. Findings suggest that conversations within the family regarding financial matters give important knowledge regarding financial matters and may be a factor to consider in designing any financial literacy program.

H2b: Ethnic Minority Students will not display significantly higher financial literacy than White British Students.

The effect of deprivation, and lack of opportunity to observe financial behaviours, may be particularly profound for those from these backgrounds, whose role models might be less involved in the household financial decision making (Fonseca et al. 2012). This implies that ethnic minority female students may experience particularly low financial literacy.

H3: Females from ethnic minorities will experience a greater negative effect on their financial literacy.

Because of the reduced involvement in financial decision making, it would be expected that financial literacy would be seen as less important for decision making for ethnic minorities on average. However, as with financial literacy itself, this effect might be driven to a large degree by the over-representation of ethnic minority members in more disadvantaged groups, and once parental income is controlled for this effect will disappear.

H4: Ethnic minorities will perceive financial literacy to be less important in financial decision making than students of White British background.

Given a reduced role in financial decision making for women from ethnic minority groups, they will see a limited importance in financial literacy. Effectively they may pass responsibility on to future partners as they form new households (Ward and Lynch 2019).

H5: Females from ethnic minorities will experience a greater negative effect on the perceived importance of financial literacy on their financial decision making.

US evidence suggests that members of ethnic minority groups tend to make use of less formal advice and support (Lusardi and Mitchell 2011). In part this may reflect reduced availability of alternative sources of advice. Collins and L'Esperance (2022) highlight the role that a bank on campus plays in raising perceptions, but where individuals come from more disadvantaged backgrounds, they are less likely to have access to these more formal sources of advice previously. This would be expected to result in greater importance being placed on family and friends as sources of advice for these groups, and less on the use of professional advisors.

H6a: Students from ethnic minority backgrounds will place more importance on advice and support from friends and family than those from the White British ethnic group.

H6b: Students from ethnic minority backgrounds will place less importance on advice and support from formal training programmes and professional advisors than those from the White British ethnic group.

To test the hypotheses set out above there is a need to control for other influences, such as, deprivation and family background. The data and analysis approach adopted is described in the next section.

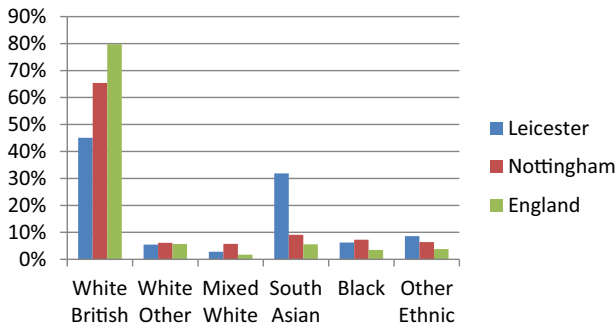


Fig. 1 Ethnic breakdown of populations of Leicester and Nottingham. Office of National Statistics (ONS), England and Wales 2011 Census

4 Data and methods

The sample examined here is drawn from those taking business and management related subjects in two business schools of East Midlands universities in the UK. According to Grimes et al. (2010) these students, who are likely to have studied similar subjects in their upper secondary school qualifications, will tend to be better versed in dealings with the financial world. The universities are Post-1992 institutions that tend to serve a larger proportion of local students, than older longer established universities in the UK. The institutions are located in Nottingham and Leicester, two mid-sized cities with larger ethnic minority populations compared to the English average (Fig. 1). For Nottingham, this reflects a multicultural urban population, while in Leicester the Indian ethnic minority group make up 28.3% of the population, to be the clear second largest group. As such they are likely to provide a good insight into the experience of relatively well educated young ethnic minority individuals within the UK.

4.1 Sample

A majority of the students were in their first year of studies, and were taking a variety of different courses within the business schools covering accounting, business, management, marketing, human resource management and economics, as well as joint honours courses. The survey was administered in the first semester of the first year of their studies in each of the years 2017–2019 (students repeating the module also completed the survey if attending the classes)². Students were surveyed within a break of one of their core classes. The participation in the survey was entirely voluntary, so there may be some potential for bias entering the sample.

To try to encourage as wide as engagement as possible, all participating in the survey were entered into a prize draw if they wished. A number of prizes were allocated randomly, regardless of how the students responded in the survey, to

² The survey was not repeated in 2020 due to the global Pandemic affecting how it might be administered and the experiences of students differing in this period.

encourage all to engage regardless of understanding. They were informed that their data would remain anonymous to avoid any fears of embarrassment. A second prize was allocated for those obtaining the highest marks in the financial literacy questions (see details of survey below). If one student obtained higher marks than the others, they automatically were awarded the prize, but if more than one student achieved the highest score in that wave it was allocated randomly to one of those students.

In total, over three waves, and across the two universities, a total of 871 usable responses were obtained. We focus on those students who indicated that their home address prior to starting university was in the UK ($N = 768$). This is to avoid conflating ethnicity with an international student background, as this may affect the understanding of the UK financial system, and awareness of different local sources of advice, rather than broader financial literacy per se.

4.2 Survey design and financial literacy measures

The survey contained a number of sections, designed to capture different insights with regards to financial literacy of students in UK higher education. The content of these sections, and their value for the current research in terms of generating measures of interest, is outlined below.

As already mentioned in this article, it has not been fully understood why particular groups have lower financial literacy, and one potential suggestion is that they do not perceive financial literacy to be as important in their future lives (Chen and Volpe 2002; Fonseca et al. 2012). This might be a consequence of students of different ethnic backgrounds having different perceptions of what financial literacy is. The first section, therefore, asked students to rate their agreement with a number of statements about what financial literacy consisted of. These were all definitions that had been taken from the literature. The students were asked to rate the importance, from 1 (not important) to 5 (extremely important), of the following items in constituting their financial literacy:

- The ability to read about and analyse personal financial conditions that affect your material well-being.
- The ability to communicate about personal financial conditions that affect your material well-being.
- Ability to discern financial choices, discuss money and financial issues without discomfort.
- Ability to plan for the future and respond competently to events in your life that affect everyday financial decisions.
- Ability to plan for the future and respond competently to events in the general economy that affect everyday financial decisions.

Although our focus is on the different perceptions of what constituted financial literacy, we also considered, as a check, whether there was evidence of differences in the overall importance of financial literacy for some students. To account for this, we both used a raw average of the importance of the five items, but also used principal component analysis (PCA) to establish whether students tended to group particular conceptions of items together. The first component extracted from the PCA suggests

40 percent of the variance is consistent with respondents rating all of the items highly or lowly (Table 9 in the appendix). The second component with an eigenvalue of 1 or greater, however, also suggests a minority who tend to focus more on everyday events and the economy more broadly (last two items), and less on financial analysis (first two items). Both the simple average and the two components extracted were analysed.

The second set of questions examined who the respondents would draw upon for advice in terms of their financial decision making as those from ethnic minority backgrounds are more likely to seek advice from relatives and informal sources rather than professionals (Lusardi and Mitchell 2011). This may perpetuate a less interested attitude to financial literacy, reduce the ability of those seeking this advice, and in some cases results in financial literacy skills effectively being outsourced by young people to others in their household (Ward and Lynch 2019), in most likelihood their parents. The sources considered were: Parents and Close Relatives; Other Relatives and Friends; Citizen's Advice Bureau; University Support Services; University Degree Course; Internet and Social Media; Library and Books in general; Short Courses in Financial Literacy; Bank Manager (or other financial professionals). As many students would not have sought advice, they were instead asked to rate their importance from 1 (not important) to 5 (extremely important) as sources of advice and support for financial decision making.

The third section includes a set of questions that are designed to capture different aspects of financial literacy, as covered in the Defining Financial Literacy sub-Section 2.1. These have been drawn from a number of previous studies, but have been adapted to reflect the types of decision taken by students. In all 15 items are included covering dealing with inflation and interest rates, risk and return and practical issues relating to credit ratings and money management.

The third section therefore provides a measure of financial literacy, which can be compared to the previous studies, largely undertaken in the US, to determine if differences can be found across ethnic minority groups when considering those that self-select into higher education. The first section gives insight into the understanding and perceived role of financial literacy. If particular groups perceive financial literacy to be less important for particular types of decisions in life, then this can help to explain any differences found in financial literacy ability. The second section of the survey generates data on who is envisaged to be important for support and advice with financial literacy. Again, any differences in these patterns can highlight both why levels of financial literacy vary (if such differences are found), and also why perceptions of its role can differ. Table 1 provides descriptive statistics for these dependent variables and the independent and control variables discussed below.

4.3 Ethnicity

For familiarity, the ethnic background measure included in the survey is based on that used in the National Census and other official data collection. In order to produce subsamples of sufficient size to examine statistically, it is necessary to consolidate some of these groups. This is not perfect as studies looking at economic activities, such as entrepreneurship, have found there to be distinctions between different ethnic

Table 1 Descriptive statistics and proportions

	Mean	SD	Min	Max
Financial Literacy Scores	6.8	1.9	1	12
<u>Perceptions of Financial Literacy</u>				
Analyse Financial Conditions	4.2	0.8	1	5
Communicate Financial Conditions	3.8	0.9	1	5
Discern Financial Choices	3.9	0.9	1	5
Respond to Everyday Events	4.4	0.8	1	5
Respond to General Economy	4.1	0.8	1	5
<u>Sources of Advice</u>				
Parents	4.2	0.9	1	5
Other Relatives	2.9	1.0	1	5
Citizen's Advice Bureau	2.9	1.2	1	5
University Support Services	3.3	1.1	1	5
University Degree Courses	3.4	1.1	1	5
Internet and Social Media	2.7	1.1	1	5
Library and Books	2.9	1.1	1	5
Short Courses	3.2	1.1	1	5
Bank Manager	3.9	1.1	1	5
Percentage				
<u>Ethnicity</u>				
White British	67.8			
White Other	4.6			
Mixed White	4.8			
South Asian	9.8			
Black	8.2			
Other Ethnic Background	4.8			
Male	65.2			
First Year of Study	88.7			
NTU Student	86.3			
<u>Location</u>				
North	12.1			
East Midlands	29.4			
West Midlands	12.9			
East and South East of England	20.7			
South West and Celtic Nations	7.9			
London	16.9			
<u>Workstatus of Main Breadwinner</u>				
Unemployed or Economically Inactive	5.9			
Employed Part-Time	7.4			
Employed Full-Time	86.7			

Table 1 continued

	Mean	SD	Min	Max
Parental Education				
No Formal Education	5.9			
GCSE or O-Level Equivalent	22.1			
A-levels or Equivalent	27.9			
Bachelor's Degree	29.7			
Postgraduate Qualifications	14.5			
Household Income Less than £35,000	28.0			
Any Debt Before Coming to University	5.2			
Any Investments	60.3			
Had a Credit Card Before Coming to University	20.3			
No Employment Experience	9.5			

$N = 768$

groups, for example those of Black African and Black Caribbean background (Kwong et al. 2009), and South Asian groups, such as Indians and Pakistanis (Thompson et al. 2010). However, limited responses necessitate this consolidation, but these categories still provide greater insight than studies that include a single 'non-White' dummy. The final groups used in the analysis were: White British; White Other; Mixed White; South Asian; Black; Other Ethnic Background. The 'White Other' category might be of particular importance as the UK has seen a large number of migrants from Eastern Europe, often with different priorities and employment patterns (Demireva 2011), which might affect their children's knowledge of financial decision making. Although previous literature noted above suggests that there may be differences between the various ethnic minority groups, the relatively small subsamples, even with the aggregation noted above, make it worth checking the results. Therefore, as an alternative we rerun the results using a dummy to reflect being from any minority background relative to being from the White British majority ethnic group. These results are presented in the appendix (Tables 13, 17, 20 and 23).

4.4 Analysis approach

The nature of the dependent variables previously discussed means that standard ordinary least squares regressions are inappropriate. For the measure of financial literacy itself, this is a count based measure and therefore is best captured by a Poisson regression (Wooldridge 2018). The measures of what constitutes the role of financial literacy and the sources of advice and support perceived to be of importance, are both ordinal measures. This makes an ordered logit most appropriate for estimating these.

As there is potential for gender to interact with ethnic background, there is a need to take this into account. One possible approach would be to include interaction terms in specifications. The difficulty is that the six ethnic categories would require five interaction terms with gender, with this likely to cause issues of collinearity, and difficulties in interpretation. Therefore, these are just included as a robustness check within the appendix (Tables 11, 15, 19 and 21). An alternative, and the one adopted here, is to use the subsamples of male and female respondents. This has the added benefit of allowing family and other influences to vary for the genders.

To allow easier comparison of the impact of ethnicity on financial literacy, perceptions of financial literacy and sources of advice used, where appropriate, we also report the incident rate ratios (Poisson regressions) and odds ratios (ordered logit regressions). This allows the impact of belonging to an ethnic minority group rather than the White British group to be determined, for example, an incident rate ratio of 2 for a particular group would imply that, holding other things equal, belonging to this group would be associated with a doubling of financial literacy scores. In the case of odds ratios, a value of 2 would reflect the ethnic minority group being twice as likely to give a higher rating of the perception that financial literacy takes a particular form, or an advice source being valued. These results are presented in the appendix for all relevant tables of results (see Tables 6, 7, 8, 12, 14, 16, 18, 22 and 24).

4.5 Control variables

The theoretical literature, including its empirical evidence, covered in previous subsections, indicate that much of the difference in financial literacy between ethnic groups, is likely to be explained by other factors that are linked to ethnic minority membership. Controls for these demographic characteristics, contextual factors relating to family and household, and personal financial experience influences, are therefore needed to establish whether there truly is an ethnic minority effect.

Studies in the US and internationally have also found that on average women display lower levels of financial literacy (Lusardi and Mitchell 2011). To account for this, we include a dummy to reflect the gender the respondent identified as. However, there is potential for an interaction to exist between gender and ethnic minority background given potential for religious, social, and cultural differences relating to the role of women in different groups (Hasler and Lusardi 2017). As noted above, this is considered by re-running the regressions using the male and female subsamples separately. It is possible that the influence of family on financial literacy is also likely to differ between the genders, so this flexibility is also of relevance for the variables discussed below (Chambers et al. 2019).

We include a dummy to differentiate between those students in their first year of study and others, as time living more independently in their own households, rather than that of their parents, would be expected to yield greater first-hand experience of decision making of all kinds, particularly financial decision making (Holdsworth 2009). We control for geographical mobility by including dummies for home regions, to capture those more likely to have moved away from home. Holdsworth (2009) does note that some choosing to attend university locally may display greater

independence. This is in part due to family financial constraints meaning they are more likely to take part time jobs, but as this is controlled for (see below), it should have less impact, and those with more geographical mobility are expected to display greater independence.

As noted in previous studies the parental background of young people is found to be associated with their financial literacy (Mandell 2008). To reflect less affluent households, we include a dummy for those coming from households with an income of less than £35,000, which approximates to a household of two adults both earning in the bottom quarter of the UK earnings distribution (ONS 2020).

Although we had finer grained data on household income, we used the simple binary measure discussed above, to allow more detail about the work status of the main breadwinner in the family. This reflects the fact that the source of income may be more important for experience in financial decision making, rather than the level of income (Hasler et al. 2018). The different work status categories included were: full-time employed; part-time employed; and unemployed or economically inactive. Ideally, we would have split the last category, as although both temporary and repeated parental worklessness are negatively associated with children's development in terms of reading and mathematics, it is repeated worklessness which has the stronger effect (Parsons et al. 2014). However, the high employment in the UK at the time of the survey, meant that relatively few respondents indicated the main breadwinner was out of work.

Similarly, as well as their own education, their parent's educational background is positively associated with financial literacy (Lusardi et al. 2010; Lusardi and Mitchell 2011). Respondents indicated which of five levels of qualification corresponded to the highest level achieved by either parent: no formal qualifications; GCSE/O-level equivalent; A level or equivalent; Bachelor's degree; or Postgraduate qualifications.

Lastly, we controlled for the direct experience of students in making financial decisions, including dummies for having: any debt before university; any investments; having a credit card before coming to university; and no prior employment experience. In the case of those items relating to debt, it is unclear whether these will indicate an experience of dealing with these issues, or a consequence of not being able to make sound financial decisions (Artavanis and Karra 2020). For investments and employment, both are expected to positively affect an understanding of financial decision making (Chen and Volpe 1998), what it constitutes, and perceptions of their own ability (LaBorde et al. 2013), which may affect whether to access advice, and who might provide it (Fan 2021).

For the financial literacy score, a set of regressions were also run where the sources of advice were included. This is to see if these linked to financial literacy before exploring how these differ between different ethnic groups. Given the similarities between some groups we ran a PCA to combine these overlapping sources of advice, which generated three groups: value advice from professional sources; value advice from digital, library and university sources; and value advice from friends and relatives (see Table 10 in the appendix). Effectively these range from the most formal and professional sources to the least formal.

5 Results

Table 2 presents the results of the Poisson regressions of the financial literacy scores for all students. The regressions do not explain a large amount of the variance, which is in part to be expected given that the characteristics captured will never be able to account for all the individual experiences, and natural ability of students. However, the LR-tests and Goodness of Fit tests indicate that the regression coefficients are collectively significant, and do not deviate from a good fit to the data.

In the first column (all respondents), it is striking that the results suggest that most ethnic minority groups perform significantly less well than their White British counterparts in terms of their financial literacy scores. The only group where this difference is not statistically significant is the Mixed White group. This finding that ethnic minority groups continue to have lower financial literacy is consistent with studies, such as Al-Bahrani et al. (2019), and therefore supports hypothesis 1a. Column 2 indicates that the results depart from those studies that find this relationship disappears when controlling for income of parents, indicating a lack of support for hypothesis 1b, and other factors associated with deprivation (Ofosu-Mansay Ababio et al. 2021).

Hypothesis 2a provided an alternative scenario based on the self-selecting sample of students being atypical, where ethnic minority students may display higher levels of financial literacy. This was clearly not supported given the negative coefficient found. Inclusion of parental education also did not affect the results, so self-selection does not appear to be a factor, so hypothesis 2b is also unsupported. Table 13 in the appendix confirms that replacing the individual ethnic groups with a single dummy, reflecting any minority group membership, does not alter the results.

The group that appears to struggle most compared to the White British Group are the 'Other Ethnic Background' group that contains those of non-southern Asian background, for example, East Asian and Arab. Given the engagement of those of Chinese background in small business ownership (Battilani and Fauri 2020), this is perhaps a surprise. However, these ethnic groups have been found to face additional barriers to accessing finance, which increases their reliance on informal sources of financing (Zhang 2015).

Other significant influences on financial literacy scores were year of study, where those in their first year do less well. This reflects a limited opportunity to learn from their own experiences in their new households (Holdsworth 2009). Reflecting the importance of their own experiences, those with investments prior to coming to university are significantly more likely to score more highly. Debt and credit card ownership has no significant effect. As noted above this may reflect two counter-acting effects where experience is gained from such financial interactions, but it may also be due to errors from lower financial literacy in the first place (Artavanis and Karra 2020). Gender is also a significant influence, with male students scoring significantly better than their female counterparts.

As expected parental education has a positive effect (Lusardi and Mitchell 2011), but this is found to only apply to the male participants. However, there is some evidence (at the 10% significance level), that relying on/valuing advice

Table 2 Poisson regression of financial literacy scores

	All	All (Full Controls)	Male (Full Controls)	Female (Full Controls)
Ethnic Background (reference category White British)				
White Other	-0.1399** (0.0710)	-0.1486** (0.0717)	-0.1493 (0.0925)	-0.1429 (0.1184)
Mixed White	-0.0710 (0.0667)	-0.0704 (0.0674)	-0.0918 (0.0847)	0.0022 (0.1180)
South Asian	-0.1354*** (0.0516)	-0.1249** (0.0544)	-0.1253* (0.0661)	-0.1021 (0.1005)
Black	-0.1347** (0.0568)	-0.1289** (0.0602)	-0.1252* (0.0756)	-0.1129 (0.1061)
Other Ethnic Background	-0.2483*** (0.0721)	-0.2174*** (0.0745)	-0.1120 (0.0907)	-0.4157*** (0.1371)
Male	0.0881*** (0.0298)	0.0903*** (0.0306)		
First Year of Study	-0.1016** (0.0426)	-0.1017** (0.0438)	-0.1143** (0.0545)	-0.0934 (0.0776)
NTU Student	-0.0007 (0.0433)	0.0120 (0.0445)	0.0024 (0.0545)	0.0231 (0.0800)
Home Location (reference category East Midlands)				
North of England	-0.0196 (0.0476)	-0.0234 (0.0481)	-0.0274 (0.0587)	0.0024 (0.0888)
West Midlands	-0.0235 (0.0464)	-0.0198 (0.0468)	-0.0323 (0.0570)	0.0383 (0.0888)
East and South East of England	-0.0526 (0.0403)	-0.0585 (0.0412)	-0.0555 (0.0502)	-0.0632 (0.0752)
South West England and the Celtic Nations	-0.0170 (0.0552)	-0.0208 (0.0563)	-0.0161 (0.0692)	-0.0101 (0.1011)
London	-0.0231 (0.0446)	-0.0128 (0.0456)	-0.0063 (0.0569)	-0.0273 (0.0828)
Workstatus of Main Breadwinner (reference category Full-Time Employed)				
Unemployed or Economically Inactive		-0.0679 (0.0649)	-0.1184 (0.0802)	0.0517 (0.1169)
Employed Part-Time		-0.0463 (0.0573)	0.0153 (0.0715)	-0.1527 (0.1006)
Parental Highest Education (reference category A-level)				
No Formal Education		-0.0136 (0.0695)	-0.0020 (0.0806)	-0.0634 (0.1510)
GCSE or O-Level Equivalent		0.0134 (0.0405)	0.0338 (0.0508)	-0.0203 (0.0709)
Bachelor's Degree		0.0741** (0.0370)	0.0949** (0.0455)	0.0250 (0.0666)
Postgraduate Qualifications		-0.0070 (0.0463)	0.0166 (0.0564)	-0.0661 (0.0836)

Table 2 continued

	All	All (Full Controls)	Male (Full Controls)	Female (Full Controls)
Income Less than £35,000		0.0242 (0.0361)	0.0171 (0.0444)	0.0277 (0.0666)
Any Debt Before Coming to University		-0.0546 (0.0655)	-0.0320 (0.0804)	-0.0788 (0.1165)
Any Investments		0.0611** (0.0294)	0.0545 (0.0366)	0.0538 (0.0517)
Had a Credit Card Before Coming to University		-0.0410 (0.0355)	-0.0531 (0.0408)	-0.0124 (0.0755)
No Employment Experience		-0.0275 (0.0497)	-0.0216 (0.0572)	-0.0701 (0.1075)
Value Advice from Professional Sources		0.0022 (0.0140)	-0.0056 (0.0169)	0.0297 (0.0268)
Value Advice from Digital, Library and University Sources		-0.0032 (0.0150)	0.0026 (0.0185)	-0.0143 (0.0273)
Value Advice from Friends and Relatives		-0.0271* (0.0144)	-0.0193 (0.0173)	-0.0386 (0.0277)
Constant	2.0153*** (0.0645)	1.9529*** (0.0736)	2.0506*** (0.0867)	1.9672*** (0.1328)
N	768	768	501	267
Likelihood Ratio-test	44.3	62.6	34.6	31.0
[d.f]	[13]	[27]	[26]	[26]
(p-value)	(0.000)	(0.000)	(.121)	(0.229)
R ²	0.013	0.019	0.016	0.027
Goodness of Fit (p-value)	417.4 (1.000)	399.1 (1.000)	226.731 (1.000)	128.130 (1.000)
AIC	3311.3	3321.0	2188.2	1172.4
SIC	3376.3	3451.0	2302.1	1269.3

Standard errors from negative Hessian in parentheses; indicate statistically significant at the *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$ levels

from close family members, is a negative influence on financial literacy. This shows that parents have an important role in determining the financial literacy of their children, but while they may learn good habits from their parents, there is also the likelihood of learning their bad habits as well, so that experiences in the households of their formative years may have a lasting effect on their new households.

Dividing the sample by gender reduces the significance of results found, due to the reduced number of observations being considered. Although, the coefficients for the male sample are largely similar to those for the full sample, only the Black and South Asian ethnic groups retain statistical significance, and then only at the 10% level. Most coefficients are similar in size for the male and female samples, but the smaller female subsample means significance is further reduced. This means in general there is no support for hypothesis 3, with female students from an ethnic background no more strongly affected than their male counterparts. The main exception is the Other Ethnic group, where the coefficient in the male sample is half the absolute size of the full sample. Instead, the significant result found previously appears to be driven by the female members of this group. This is confirmed by the results in Table 11 in the appendix, where the interaction term reflecting being male and coming from the Other Ethnic group is positive and significant at the 10% level. It is unfortunate that the aggregated ethnic groups have to be used. Understanding exactly which communities are affected most strongly, would be important when providing support to this group of young women, who lack the financial literacy skills that will help to pursue independent lives and careers. What this does show, is that assumptions of which students will have lower financial literacy, cannot be explained by blanket ethnic or gender effects. Table 13 in the appendix confirms this, where all interactions between gender and the combined minority background variable are insignificant. These differences are potentially driven by cultural differences between the ethnic groups, that affect the gender roles typically promoted (Fraser-Mackenzie et al. 2014).

Given the results presented above that show that after controlling for an extensive list of individual experiences and familial background, those students from ethnic minority backgrounds have lower financial literacy skills, we now move on to considering two potential explanations for this. Firstly, we consider if what financial literacy relates to differs between ethnic groups (Table 3). Differences in perceptions might explain why particular groups place less emphasis on these skills. The LR-tests for the ordered logits are all able to reject the null of constant probability.

The 'Other Ethnic' group, that had scored relatively poorly in terms of financial literacy ability, are the one group that shows a significant relationship with one of the perceptions of what financial literacy consists of. This group is less likely than the White British majority, to feel that financial literacy relates responding to planning for and responding to everyday events. The implication is that this group may not appreciate the true value of financial literacy in avoiding costly mistakes and managing transactions. Although, not shown here for preservation of space, when not controlling for how sources of advice are valued (see below), the Black ethnic group showed a greater perception of financial literacy being able to discern financial choices without discomfort. Although, not problematic in itself, it does perhaps

Table 3 Ordered logit of perceptions of what is meant by financial literacy

	Analyse Financial Conditions	Communicate Financial Conditions	Discern Financial Choices	Respond to Everyday Events	Respond to General Economy
Ethnic Background (ref cat White British)					
White Other	0.5380 (0.3505)	0.3921 (0.3269)	-0.3246 (0.3292)	0.0059 (0.3502)	-0.1757 (0.3394)
Mixed White	-0.3744 (0.3562)	0.1631 (0.3356)	0.1695 (0.3147)	-0.3625 (0.3255)	0.0193 (0.3290)
South Asian	0.1912 (0.2692)	0.2628 (0.2597)	0.3254 (0.2495)	0.2989 (0.2765)	0.2799 (0.2573)
Black	0.3315 (0.2995)	0.3267 (0.2913)	0.4721 (0.2877)	0.0328 (0.3057)	0.1427 (0.2995)
Other Ethnic Background	-0.0123 (0.3475)	-0.3806 (0.3232)	0.2667 (0.3215)	-0.6980** (0.3493)	-0.6486* (0.3343)
Male	0.3172** (0.1549)	-0.0965 (0.1472)	-0.1069 (0.1459)	-0.1503 (0.1556)	0.0750 (0.1497)
First Year of Study	-0.4594** (0.2263)	-0.0455 (0.2198)	-0.3232 (0.2272)	-0.2803 (0.2364)	-0.4261* (0.2247)
NTU Student	0.5829** (0.2299)	0.2086 (0.2156)	0.0033 (0.2077)	0.1977 (0.2248)	-0.2003 (0.2160)
Home Location (ref cat East Midlands)					
North	-0.3487 (0.2425)	-0.2920 (0.2363)	0.3147 (0.2308)	-0.1048 (0.2468)	0.0664 (0.2347)
West Midlands	0.1440 (0.2409)	0.1670 (0.2290)	0.0879 (0.2288)	0.2287 (0.2422)	-0.0182 (0.2293)
East and South East of England	0.0387 (0.2108)	-0.1787 (0.1999)	0.3677* (0.1985)	0.1938 (0.2097)	0.2353 (0.2027)
South West England and the Celtic Nations	-0.2460 (0.2864)	-0.5995** (0.2766)	0.1170 (0.2729)	-0.3869 (0.2871)	0.3615 (0.2868)
London	-0.4770** (0.2308)	-0.3111 (0.2220)	0.1167 (0.2216)	0.2190 (0.2363)	0.0173 (0.2272)
Workstatus of Main Breadwinner (ref cat Full-Time)					
Unemployed or Economically Inactive	-0.2973 (0.3162)	-0.4900 (0.3247)	-0.4597 (0.3063)	0.0310 (0.3147)	0.7499** (0.3186)
Employed Part-Time	-0.0675 (0.2899)	0.0462 (0.2810)	0.2809 (0.2746)	-0.0075 (0.2901)	0.1633 (0.2835)
Parental Highest Education (reference category A-level)					
No Formal Education	0.6513* (0.3392)	0.2288 (0.3294)	0.3345 (0.3167)	0.1601 (0.3425)	0.1144 (0.3351)
GCSE or O-Level Equivalent	-0.1410 (0.2056)	-0.0406 (0.1967)	0.3711* (0.1931)	0.0276 (0.2052)	0.0176 (0.1981)
Bachelor's Degree	0.2811 (0.1898)	-0.1436 (0.1814)	0.1284 (0.1820)	0.2629 (0.1929)	-0.0185 (0.1852)
Postgraduate Qualifications	-0.0108 (0.2331)	-0.0653 (0.2248)	0.1198 (0.2191)	0.1744 (0.2342)	0.1820 (0.2282)
Household Income Less than £35,000	-0.1911 (0.1856)	-0.2052 (0.1757)	-0.1443 (0.1740)	-0.2370 (0.1822)	-0.2301 (0.1781)
Any Debt Before Coming to University	0.1929 (0.3347)	0.0319 (0.3107)	0.0107 (0.3244)	0.1985 (0.3312)	-0.0177 (0.3220)
Any Investments	0.0229 (0.1490)	-0.1581 (0.1426)	0.3509** (0.1405)	0.2040 (0.1497)	0.1143 (0.1441)

Table 3 continued

	Analyse Financial Conditions	Communicate Financial Conditions	Discern Financial Choices	Respond to Everyday Events	Respond to General Economy
Had a Credit Card Before Coming to University	0.0357 (0.1828)	-0.1731 (0.1726)	-0.2008 (0.1697)	-0.2783 (0.1766)	-0.1011 (0.1742)
No Employment Experience	-0.0256 (0.2445)	0.1803 (0.2374)	0.3666 (0.2311)	-0.2449 (0.2498)	-0.0828 (0.2361)
Advice from Professional Sources	0.3318*** (0.0726)	0.3210*** (0.0705)	0.1418** (0.0684)	0.3548*** (0.0726)	0.3836*** (0.0712)
Value Advice from Digital, Library and University Sources	0.1106 (0.0772)	0.1006 (0.0747)	0.0982 (0.0741)	0.0620 (0.0771)	0.2803*** (0.0754)
Value Advice from Friends and Relatives	0.2493*** (0.0742)	0.1742** (0.0720)	0.1326* (0.0688)	0.1400* (0.0744)	0.1851** (0.0732)
cut1	-4.970	-5.424	-4.934	-5.732	-7.182
cut2	-3.398	-2.993	-2.648	-3.739	-4.390
cut3	-1.631	-1.101	-0.722	-2.011	-1.846
cut4	1.024	1.039	1.029	-0.158	0.284
N	768	768	768	768	768
Likelihood Ratio-test	76.35	55.33	43.47	58.19	71.56
[d.f]	[27]	[27]	[27]	[27]	[27]
(p-value)	(0.000)	(0.001)	(0.023)	(0.001)	(0.000)
R ²	0.046	0.029	0.023	0.036	0.042
AIC	1635.7	1911.1	1952.6	1612.4	1716.2
SIC	1779.6	2055.1	2096.5	1756.3	1860.2

Standard errors from negative Hessian in parentheses; indicate statistically significant at the *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$ levels

suggest that compared to the White British majority, some ethnic groups see financial literacy as relating to larger one off decisions, not avoiding financial difficulties in the first place. Table 19 in the appendix confirms that no significant differences are present in the overall rating of perceived importance of financial literacy when taking a simple average of the scores or the first component of the PCA, but the 'Other Ethnic' group does favour a view of financial literacy being more about financial decision making. When considering those belonging to all minority groups in combination relative to the White British majority, no significant differences are found for individual perceptions of financial literacy (Table 17 in the appendix), or the importance of financial literacy from the combined measures (Table 20 in the appendix). This means that hypothesis 4 is not supported for all ethnic minority groups, and where there is support, it only relates to one perception of financial literacy. The nuance of this result could be important given the consequences it could have with regard to attempting to improve financial literacy of these groups and their households.

For preservation of space, we do not include the results when splitting by gender, but note that the male sample produces the same negative relationship for the Other Ethnic group with perceiving financial literacy to relate to planning and responding to day to day events. Although this disappears for the female Other Ethnic group, a positive relationship with ability to discern financial choices is found at the 10% level. Interestingly those from the Other White female group are more aware of its role in day to day decisions. This is also confirmed by a significant negative interaction between being male and belonging to the Other White ethnic group, as shown in Table 15 in the appendix. The opposite is true for the Black ethnic group, where male students from this group, are more likely to see financial literacy being important for responding to everyday events, than their female counterparts. This positive interaction between being Male and from a Black ethnic background is also weakly supported for the combined measure, that reflects greater emphasis on the everyday and less on financial decision making (Table 19 in the appendix). This means there is no support for hypothesis 5 (see also the lack of significant coefficients on the combined minority background variable in Tables 17 and 20 within the appendix), but again a much more complicated picture is evident with differences across groups, and greater emphasis placed on different perceptions of financial literacy.

The results indicate that one of the most important factors in determining what financial literacy is perceived to be, is the advice valued. Generally, the more advice is valued, the more likely the different roles of financial literacy will be acknowledged. The greatest number of significant influences relates to valuing professional sources, although family and friends also play a role. Valuing family and friends is less strongly associated with seeing financial literacy as important in discerning financial choices, and responding to everyday events. In other words, those that value advice from family and friends, do not appear to be made as aware of the day to day importance of financial literacy. In effect, financial literacy is viewed as being able to understand and discuss more abstract and distant financial impacts. This may mean that many of the real benefits are lost, or even responsibility for these everyday decisions passed to other members of the household (Ward and Lynch 2019). Self-learning from the Internet, library or even university courses are only connected with

financial literacy relating to responding to the more formal understanding of how to respond to the general economy. This is another worry as young people are heavily influenced by social media and the Internet in general, and often schemes to boost their understanding are targeted through such outlets (Yanto et al. 2021). Those valuing these sources of advice may not be fully aware of the day to day value of this learning. This fits with Lee's (2019) finding that while the social media may have a role to play, financial leaders feel that it will not replace face to face teaching of financial literacy.

The other controls that have a significant effect are perhaps understandable. Those with parents out of work are more likely to perceive financial literacy as helping to understand general economic conditions. Given recessions can more strongly affect the mental health of children of parents most likely to be unemployed (Golberstein et al. 2019), such children might feel the need to plan for future periods of unemployment due to recessions. This may not be an over-reaction given that studies have found that parental job loss can influence children's educational outcomes and early employment experiences (Gregg et al. 2012). Having investments is positively associated with being able to discern financial choices without discomfort, as such individuals will have more experience of such decision making (Chen and Volpe 1998).

In investigating what students perceive financial literacy to consist of, we have found evidence of differences between ethnic groups even after controlling for other influences. One of the most important influences appears to be the advice valued by the individuals. What we haven't considered until this point, is whether ethnic background indirectly influences financial literacy through the choices of advice which are valued. Table 4 below presents the ordered logit regressions of the extent different sources of advice are valued. The regression of Bank Managers as a valued source of advice, is the only regression where the LR-test fails to indicate the estimation outperforms the null of constant probability.

Compared to the White British reference group, the South Asian, Black and Other Ethnic Group are more likely to value particular sources of advice. Library sources along with the University degree courses are valued more highly by all three groups. From Table 4 above, these were some of the sources of advice that pushed students to believe that financial literacy related to larger one off decisions, and perhaps reinforces their natural limited understanding, that financial literacy can also be of value in day to day decisions and planning. Supporting hypothesis 6a, both the South Asian and Other Ethnic groups also value their wider families as sources of advice. This is something that is picked up in the entrepreneurship literature (Zhang 2015), and has the potential to be beneficial, but can also restrict the extent other sources of advice are sought (Altinay 2008), or even diminish efforts to learn financial literacy skills themselves where these sources can be utilised (Ward and Lynch 2019). It must be noted that the Other Ethnic group along with the Black ethnic group valued advice from the Citizen's Advice Bureau more than the White British group, so there is no direct support for hypothesis 6b. Table 23 in the appendix shows the how combining the individual ethnic groups into a single minority background measure can obscure the results, as all but parents and bank manager are valued significantly more highly as sources of advice. From these results alone, it would suggest that those from minority

Table 4 Ordered logit regression of extent individual sources of advice are valued

	Parents	Other Relatives	Citizen's Advice Bureau	University Support Services	University Degree Courses	Internet and Social Media	Library and Books	Short Courses	Bank Manager
Ethnic Background (reference category White British)									
White Other	-0.4237 (0.3386)	0.0447 (0.3171)	-0.1905 (0.3257)	0.0955 (0.3161)	0.5325 (0.3277)	0.5312 (0.3280)	0.5515* (0.3222)	0.1642 (0.3246)	-0.2211 (0.3315)
Mixed White	0.0060 (0.3322)	0.2280 (0.3210)	0.2232 (0.3117)	0.5073 (0.3155)	0.3456 (0.3228)	-0.0154 (0.3026)	0.2871 (0.3358)	0.1331 (0.3301)	-0.1899 (0.3102)
South Asian	0.2307 (0.2542)	0.6550*** (0.2525)	0.2782 (0.2470)	0.5695** (0.2503)	0.5845** (0.2496)	0.5769** (0.2466)	0.9703*** (0.2475)	0.5637** (0.2437)	0.2031 (0.2516)
Black	-0.1118 (0.2907)	0.3297 (0.2694)	0.5394** (0.2664)	0.4346 (0.2746)	1.0444*** (0.2736)	0.4895* (0.2616)	1.4800*** (0.2710)	1.1339*** (0.2693)	0.1292 (0.2690)
Other Ethnic Background	0.1802 (0.3476)	0.9721*** (0.3229)	0.7187** (0.3131)	0.9114*** (0.3208)	0.7636** (0.3322)	0.3365 (0.3254)	0.7943** (0.3263)	0.3278 (0.3238)	0.1447 (0.3275)
Male	-0.4177** (0.1490)	-0.1491 (0.1408)	-0.1918 (0.1405)	-0.1354 (0.1422)	0.4413*** (0.1426)	0.1054 (0.1393)	0.1773 (0.1398)	-0.0850 (0.1415)	-0.1789 (0.1433)
First Year of Study	0.0242 (0.2214)	-0.1081 (0.2132)	0.6364*** (0.2121)	0.7666*** (0.2211)	0.5064** (0.2155)	0.3326 (0.2137)	0.8225*** (0.2144)	0.3825* (0.2157)	0.1612 (0.2202)
NTU Student	1.1481*** (0.2105)	0.7820*** (0.2029)	-0.4666** (0.2012)	-0.0478 (0.2016)	0.5150** (0.2003)	-0.1671 (0.1949)	0.4133** (0.1963)	0.1208 (0.1961)	-0.1474 (0.2020)
Home Location (reference category East Midlands)									
North of England	-0.1625 (0.2363)	0.2128 (0.2241)	0.0368 (0.2271)	-0.2244 (0.2286)	0.0237 (0.2260)	0.1734 (0.2232)	0.0170 (0.2269)	-0.1219 (0.2298)	-0.3581 (0.2329)
West Midlands	-0.0254 (0.2246)	-0.2129 (0.2195)	-0.0495 (0.2175)	-0.2289 (0.2200)	0.0176 (0.2157)	-0.0427 (0.2230)	-0.2153 (0.2213)	-0.0982 (0.2183)	-0.2244 (0.2234)
East and South East of England	-0.0139 (0.2023)	-0.2019 (0.1971)	0.0903 (0.1926)	-0.2493 (0.1950)	0.0074 (0.1950)	-0.3894** (0.1949)	-0.0467 (0.1926)	-0.0030 (0.1935)	-0.4482** (0.1967)
South West England and the Celtic Nations	-0.0564 (0.2837)	0.1124 (0.2658)	-0.2669 (0.2653)	-0.2006 (0.2757)	-0.2537 (0.2697)	0.6945** (0.2719)	0.0982 (0.2651)	0.0569 (0.2814)	-0.7312*** (0.2671)
London	0.0586 (0.2272)	-0.1056 (0.2174)	-0.1371 (0.2117)	-0.1899 (0.2151)	0.2327 (0.2168)	-0.0540 (0.2121)	-0.1935 (0.2150)	-0.0591 (0.2157)	-0.3137 (0.2224)
Workstatus of Main Breadwinner (reference category Full-Time Employed)									
Unemployed or Economically Inactive	0.1512 (0.3250)	0.2715 (0.3134)	0.6653** (0.3247)	0.3462 (0.3211)	0.4720 (0.3088)	-0.0498 (0.2956)	0.3170 (0.3125)	0.2983 (0.2905)	0.5822* (0.3105)
Employed Part-Time	-0.0381 (0.2764)	0.0544 (0.2575)	0.2338 (0.2635)	0.1192 (0.2704)	0.5241** (0.2663)	0.1115 (0.2669)	0.1880 (0.2678)	-0.0633 (0.2596)	0.0036 (0.2556)
Parental Highest Education (reference category A-level)									
No Formal Education	0.1477 (0.3349)	0.3269 (0.3212)	0.4842 (0.3178)	0.2150 (0.3157)	0.4686 (0.3264)	0.3952 (0.3228)	0.3989 (0.3142)	0.6950** (0.3176)	-0.0746 (0.3141)
GCSE or O-Level Equivalent	-0.3402* (0.1968)	-0.2676 (0.1902)	-0.0907 (0.1911)	-0.1740 (0.1918)	-0.1714 (0.1897)	-0.1155 (0.1855)	0.0309 (0.1876)	-0.1241 (0.1889)	-0.2389 (0.1929)
Bachelor's Degree	0.0516 (0.1830)	-0.3640** (0.1765)	-0.0608 (0.1724)	-0.1752 (0.1769)	-0.1474 (0.1771)	-0.2073 (0.1757)	-0.2658 (0.1769)	-0.0162 (0.1763)	0.0968 (0.1781)
Postgraduate Qualifications	-0.0222 (0.2303)	-0.3989* (0.2177)	-0.2320 (0.2125)	-0.3684* (0.2161)	-0.3460* (0.2178)	-0.3600* (0.2127)	-0.3485 (0.2149)	-0.3853* (0.2157)	-0.1491 (0.2170)
Income Less than £35,000	-0.4246** (0.1756)	-0.1522 (0.1695)	0.0151 (0.1654)	-0.1151 (0.1721)	-0.2715 (0.1696)	-0.0972 (0.1680)	-0.3528** (0.1690)	-0.1742 (0.1688)	-0.0339 (0.1734)
Any Debt Before Coming to University	-0.3172 (0.3176)	0.1441 (0.3153)	0.1997 (0.3141)	0.4408 (0.3118)	0.1511 (0.3065)	0.8873*** (0.3114)	0.3805 (0.3157)	0.3887 (0.3142)	0.0551 (0.3026)

Table 4 continued

	Parents	Other Relatives	Citizen's Advice Bureau	University Support Services	University Degree Courses	Internet and Social Media	Library and Books	Short Courses	Bank Manager
Any Investments	0.3070** (0.1429)	0.2931** (0.1379)	-0.0147 (0.1364)	-0.1302 (0.1380)	0.0420 (0.1372)	0.3580*** (0.1365)	-0.0332 (0.1374)	0.0359 (0.1381)	0.2546* (0.1399)
Had a Credit Card Before Coming to University	0.2554 (0.1771)	0.2102 (0.1656)	-0.1005 (0.1665)	0.1430 (0.1674)	0.0499 (0.1659)	-0.0048 (0.1637)	0.0088 (0.1665)	-0.0288 (0.1671)	0.0963 (0.1680)
No Employment Experience	0.2587 (0.2479)	-0.0721 (0.2290)	-0.0340 (0.2326)	0.0592 (0.2442)	0.3183 (0.2345)	-0.0853 (0.2288)	0.0798 (0.2372)	0.0827 (0.2264)	0.2985 (0.2340)
cut1	-4.065	-1.966	-1.571	-2.236	-1.559	-1.355	-0.771	-1.870	-3.165
cut2	-2.169	-0.072	-0.408	-1.016	-0.064	0.214	0.653	-0.796	-2.271
cut3	-0.599	1.531	0.856	0.507	1.350	1.480	2.033	0.764	-1.126
cut4	0.992	3.237	2.626	2.446	3.054	3.193	3.831	2.617	0.410
N	768	768	768	768	768	768	768	768	768
Likelihood Ratio-test	64.5	46.6	54.8	52.3	76.1	52.7	76.8	49.8	28.9
[df]	[24]	[24]	[24]	[24]	[24]	[24]	[24]	[24]	[24]
(p-value)	(0.000)	(0.004)	(0.000)	(0.001)	(0.000)	(0.001)	(0.000)	(0.002)	(0.224)
R ²	0.035	0.021	0.023	0.024	0.034	0.023	0.033	0.022	0.014
AIC	1830.6	2221.2	2364.5	2228.2	2245.2	2318.8	2307.8	2263.1	2120.7
SIC	1960.6	2351.2	2494.5	2358.3	2375.2	2448.8	2437.9	2393.1	2250.8

Standard errors from negative Hessian in parentheses; indicate statistically significant at the *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$ levels

backgrounds are aware of all sources of advice available, but this may miss an over-reliance by a particular group on one or other source of advice.

Although not reported for preservation of space, when splitting the sample by gender, the significant results associated with the South Asian and Black ethnic groups may be driven by the male respondents from these groups. This can't be confirmed, as the interaction terms in Table 21 within the appendix are not significant. For the Other Ethnic group, it is the female respondents who appear to drive the results with regard to which sources of advice are favoured, particularly university degree courses and library sources (see significant interaction terms in Table 21 in the appendix). A further result that stands out is for the use of other relatives, where significant interaction terms suggest it is female Black and Mixed White respondents (Table 21 in the appendix), and female minority respondents overall (Table 23 in the appendix), who are more likely to use this more informal and sometimes lower quality source of advice.

As a final check, we consider if ethnicity interacts with the effectiveness of the sources of advice valued in generating financial literacy ability. To do this, Table 5 includes an interaction term between ethnicity and the sources of advice considered. Unfortunately, to allow clarity of interpretation, it is only possible to include a dummy for ethnic minority membership, rather than the individual groups.

Although the ethnic minority dummy main effect is negative and significant, no significant interaction terms are found. Although the aggregation of the different ethnic groups mean further work would be advisable, it appears that any impact of ethnicity operates through the choice of advice rather than its effectiveness.

6 Conclusions

Although a number of studies have found that members of ethnic minority groups have lower levels of financial literacy, these studies tend to cover US samples (Lusardi and Mitchell 2007; 2011; Lusardi and Tufano 2015; Al-Bahrani et al. 2019; Hamilton and Darity 2017). They also tend to find that these differences disappear when controlling for parental income, and other measures of deprivation (Lusardi et al. 2010). This study has sought to establish if this is the case for young more highly educated individuals in the UK, those undertaking undergraduate studies of business related subjects at universities in the East Midlands, who are in the process of, or will soon, create their own households. Given previous results, and the potential for a self-selecting sample, it was expected that any negative relationship with ethnic minority background would disappear when controlling for other characteristics. Importantly, this study has also sought to understand why any differences found might exist in terms of the perceptions of financial literacy with regard to its role in life choices, and the advice that might be sought with regard to financial decisions.

The results indicate that a much more complicated picture is present in the UK. Even after controlling for a range of parental and background influences, it is found that those from ethnic minority backgrounds tend to display lower levels of financial literacy. The patterns found differ across the genders, so great care would need to be

Table 5 Poisson regression of financial literacy scores—minority membership and advice interaction

	Model 1	Model 2	Model 3	Model 4	Model 5
Minority Background	-0.1425*** (0.0323)	-0.1387*** (0.0344)	-0.1357*** (0.0345)	-0.1330*** (0.0352)	-0.1345*** (0.0355)
Male	0.0884*** (0.0298)	0.0923*** (0.0299)	0.0948*** (0.0303)	0.0911*** (0.0306)	0.0897*** (0.0306)
First Year of Study	-0.0987** (0.0425)	-0.1046** (0.0428)	-0.0971** (0.0432)	-0.0987** (0.0437)	-0.1002*** (0.0439)
NTU Student	-0.0004 (0.0427)	-0.0090 (0.0430)	-0.0034 (0.0431)	0.0122 (0.0438)	0.0128 (0.0439)
<u>Home Location</u> (reference category East Midlands)					
North of England	-0.0165 (0.0473)	-0.0211 (0.0476)	-0.0203 (0.0477)	-0.0201 (0.0477)	-0.0185 (0.0477)
West Midlands	-0.0244 (0.0464)	-0.0195 (0.0467)	-0.0196 (0.0468)	-0.0206 (0.0468)	-0.0210 (0.0468)
East and South East of England	-0.0520 (0.0401)	-0.0498 (0.0407)	-0.0554 (0.0409)	-0.0581 (0.0409)	-0.0578 (0.0409)
South West England and the Celtic Nations	-0.0179 (0.0550)	-0.0288 (0.0556)	-0.0218 (0.0558)	-0.0219 (0.0561)	-0.0196 (0.0562)
London	-0.0205 (0.0431)	-0.0133 (0.0440)	-0.0092 (0.0440)	-0.0105 (0.0441)	-0.0098 (0.0442)
<u>Workstatus of Main Breadwinner</u> (reference category Full-Time Employed)					
Unemployed or Economically Inactive	-0.0834 (0.0642)	-0.0739 (0.0644)	-0.0739 (0.0644)	-0.0720 (0.0645)	-0.0741 (0.0647)
Employed Part-Time	-0.0491 (0.0570)	-0.0491 (0.0570)	-0.0455 (0.0572)	-0.0457 (0.0573)	-0.0453 (0.0573)
<u>Parental Highest Education</u> (reference category A-level)					
No Formal Education	-0.0287 (0.0686)	-0.0287 (0.0686)	-0.0252 (0.0688)	-0.0219 (0.0690)	-0.0181 (0.0693)
GCSE or O-Level Equivalent	0.0163 (0.0403)	0.0172 (0.0403)	0.0172 (0.0403)	0.0119 (0.0404)	0.0115 (0.0404)
Bachelor's Degree	0.0772*** (0.0368)	0.0772*** (0.0368)	0.0749** (0.0369)	0.0724** (0.0370)	0.0716* (0.0371)
Postgraduate Qualifications	-0.0016 (0.0460)	-0.0016 (0.0460)	-0.0052 (0.0460)	-0.0094 (0.0462)	-0.0105 (0.0463)
Income Less than £35,000	0.0226 (0.0354)	0.0294 (0.0357)	0.0294 (0.0357)	0.0252 (0.0358)	0.0251 (0.0358)
Any Debt Before Coming to University		-0.0549 (0.0651)	-0.0549 (0.0651)	-0.0566 (0.0653)	-0.0575 (0.0653)
Any Investments		0.0579** (0.0292)	0.0579** (0.0292)	0.0631** (0.0293)	0.0634** (0.0294)
Had a Credit Card Before Coming to University		-0.0449 (0.0354)	-0.0449 (0.0354)	-0.0416 (0.0355)	-0.0418 (0.0356)
No Employment Experience		-0.0342 (0.0494)	-0.0342 (0.0494)	-0.0329 (0.0494)	-0.0311 (0.0495)

Table 5 continued

	Model 1	Model 2	Model 3	Model 4	Model 5
Value Advice from Professional Sources				0.0017 (0.0140)	0.0049 (0.0163)
Value Advice from Digital, Library and University Sources				-0.0036 (0.0150)	-0.0059 (0.0180)
Value Advice from Friends and Relatives				-0.0276* (0.0144)	-0.0153 (0.0173)
Minority Ethnic * Value Advice from Professional Sources					-0.0087 (0.0327)
Minority Ethnic * Value Advice from Digital, Library and University Sources					0.0075 (0.0316)
Minority Ethnic * Value Advice from Friends and Relatives					-0.0377 (0.0300)
Constant	2.0117*** (0.0640)	1.9964*** (0.0694)	1.9599*** (0.0722)	1.9497*** (0.0730)	1.9509*** (0.0730)
N	768	768	768	768	768
Likelihood Ratio-test	40.7	49.6	56.4	60.1	61.9
[d.f]	[9]	[16]	[20]	[23]	[26]
(p value)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
R ²	0.012	0.015	0.017	0.018	0.019
Goodness of Fit (p value)	421.0 (1.000)	412.1 (1.000)	405.3 (1.000)	401.6 (1.000)	399.8 (1.000)
AIC	3306.9	3312.0	3313.2	3315.4	3319.7
SIC	3353.3	3390.9	3410.7	3426.9	3445.1

Standard errors from negative Hessian in parentheses; indicate statistically significant at the *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$ levels

taken in determining which groups might need additional support, and what form this support should take. It appears that as well as the easier to measure influences associated with individual, family and household background, cultural factors may play a role (Britt 2016).

When seeking an explanation for this, one pattern present is that the Other Ethnic and Black groups appear to perceive financial literacy to be something most relevant for larger more infrequent decisions. It is positive that students perceive financial literacy to have importance and relevance for them, unlike in some other studies (Chen and Volpe 2002; Fonseca et al. 2012). However, their focus on these important large, but less frequent decisions, may mean the importance of financial literacy for making the smaller, but frequent, everyday decisions is being ignored. This may mean that students see the need to enhance their financial literacy as being less immediate, and they may delay investments in financial literacy into the future, when larger decisions will be taken. This could mean that the opportunity to avoid smaller, but cumulatively costly mistakes, is not taken. The consequences of this are likely to mean lower financial health, and disadvantages being passed on to the next generation of households (Boshara et al. 2015).

In part this might be linked to the sources of advice that are valued. Those that are less formal, such as friends and family, or linked to formal training on the financial markets, such as degree courses, tend to be associated with financial literacy being for these larger decisions. There is some evidence that South Asian and the Other Ethnic group students tend to value the more informal sources more, and these groups, along with the Black ethnic group, value the more theoretically focused sources of advice (university degree courses and books from the library).

In terms of the hypotheses generated, most did not hold for all ethnic groups, although those relating to financial literacy scores (hypothesis 1a), and the use of informal sources of advice (hypothesis 6a), did find more support. In general, it appears that those looking to enhance financial literacy need to emphasise the fact that it is not just about those big decisions later in life, but also in dealing with everyday decisions. The problem is that for this group of young people in particular, the advice they appear to get from home and university is not conveying this message, or gives the impression that these everyday decisions can be outsourced to others (Ward and Lynch 2019). Given not all young people go on to university, schools must make financial literacy training more practical and easier to understand in terms of day to day decisions. For those that go on to university, there is a need for courses to recognise the cumulative importance of smaller decisions for individual and household outcomes, some of the findings of behavioural economics and finance might help to illustrate this.

Although a relatively large sample was obtained, the paper is still limited in terms of the geographical coverage, with this sample being drawn from two East Midlands universities. Despite the fact that students may come from around the UK, there will be a bias towards the local populations, and those seeking to study at this type of institution. A broader sample would be advantageous, particularly one not just focused on those studying business related subjects, although it is striking that even this self-selecting sample with an expected greater interest in financial decision making, shows significant ethnic effects. With regard to the ethnic groups examined,

the need to aggregate groups means some detail was lost, and it is clear that patterns are not identical across all ethnic groups. A larger dataset would enable a better understanding of the cultural influences that might be driving some of the results found here. Similarly, qualitative studies that explore the relationships found more deeply would be of value.

Overall, it is a worry that in 21st Century Britain, young well-educated people are likely to face constraints on their life outcomes and choices, because of limited financial literacy. This will perpetuate the disadvantage that earlier discrimination has imposed (Agrisani et al. 2021). That those most likely to suffer from this remain those from ethnic minority groups is a worry, and will limit the potential to create a more equal society. These groups value both informal and formal sources of advice, but their choices appear to make them less aware of the day to day value of financial literacy, meaning skills in this area may be acquired too late.

Author contributions V.L. and P.T. were responsible for devising the survey used to collect the data analysed. Both coordinated the collection of the data from the survey. Both authors were responsible for the econometric analysis of the data. Equal responsibility and contribution was made to the development of hypotheses and writing up of the analysis.

Compliance with ethical standards

Conflict of interest The authors declare no competing interests.

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7 Appendix A – Additional Tables

Tables 6–24

Table 6 Poisson regression of financial literacy scores (Incident Rate Ratios)

	All	All (Full Controls)	Male (Full Controls)	Female (Full Controls)
Ethnic Background (reference category White British)				
White Other	0.8695** (0.0617)	0.8619** (0.0618)	0.8613 (0.0796)	0.8669 (0.1026)
Mixed White	0.9315 (0.0621)	0.9320 (0.0628)	0.9123 (0.0773)	1.0022 (0.1182)
South Asian	0.8734*** (0.0450)	0.8826** (0.0480)	0.8823* (0.0584)	0.9029 (0.0908)
Black	0.8739** (0.0496)	0.8790** (0.0529)	0.8824* (0.0667)	0.8933 (0.0948)
Other Ethnic Background	0.7801* (0.0562)	0.8046*** (0.0600)	0.8940 (0.0811)	0.6599*** (0.0905)
Male	1.0921*** (0.0325)	1.0945*** (0.0335)		
First Year of Study	0.9034** (0.0385)	0.9033** (0.0396)	0.8920* (0.0486)	0.9108 (0.0707)
NTU Student	0.9993 (0.0433)	1.0121 (0.0451)	1.0024 (0.0546)	1.0234 (0.0819)
Home Location (reference category East Midlands)				
North of England	0.9806 (0.0467)	0.9768 (0.0470)	0.9730 (0.0571)	1.0024 (0.0890)
West Midlands	0.9768 (0.0453)	0.9804 (0.0459)	0.9682 (0.0552)	1.0390 (0.0923)
East and South East of England	0.9487 (0.0382)	0.9432 (0.0388)	0.9460 (0.0475)	0.9388 (0.0706)
South West England and the Celtic Nations	0.9831 (0.0543)	0.9794 (0.0552)	0.9840 (0.0681)	0.9900 (0.1001)
London	0.9772 (0.0436)	0.9872 (0.0450)	0.9938 (0.0565)	0.9730 (0.0806)
Workstatus of Main Breadwinner (reference category Full-Time Employed)				
Unemployed or Economically Inactive		0.9344 (0.0606)	0.8884 (0.0712)	1.0531 (0.1231)
Employed Part-Time		0.9548 (0.0548)	1.0154 (0.0726)	0.8584 (0.0864)
Parental Highest Education (reference category A-level)				
No Formal Education		0.9865 (0.0686)	0.9980 (0.0805)	0.9385 (0.1417)
GCSE or O-Level Equivalent		1.0135 (0.0410)	1.0344 (0.0525)	0.9799 (0.0695)
Bachelor's Degree		1.0769** (0.0399)	1.0996 (0.0501)	1.0253 (0.0682)
Postgraduate Qualifications		0.9930 (0.0460)	1.0168 (0.0574)	0.9360 (0.0782)

Table 6 continued

	All	All (Full Controls)	Male (Full Controls)	Female (Full Controls)
Income Less than £35,000		1.0245 (0.0369)	1.0172 (0.0452)	1.0280 (0.0685)
Any Debt Before Coming to University		0.9468 (0.0620)	0.9685 (0.0778)	0.9243 (0.1076)
Any Investments		1.0630** (0.0312)	1.0560 (0.0387)	1.0552 (0.0546)
Had a Credit Card Before Coming to University		0.9598 (0.0341)	0.9483 (0.0387)	0.9877 (0.0746)
No Employment Experience		0.9729 (0.0484)	0.9786 (0.0559)	0.9323 (0.1002)
Value Advice from Professional Sources		1.0022 (0.0140)	0.9944 (0.0168)	1.0302 (0.0276)
Value Advice from Digital, Library and University Sources		0.9968 (0.0150)	1.0026 (0.0185)	0.9858 (0.0270)
Value Advice from Friends and Relatives		0.9732* (0.0141)	0.9809 (0.0170)	0.9621 (0.0267)
Constant	7.5029*** (0.4838)	7.0494*** (0.5191)	7.7727*** (0.6736)	7.1504*** (0.9499)
N	768	768	501	267
Likelihood Ratio-test	44.3	62.6	34.6	31.0
[d.f]	[13]	[27]	[26]	[26]
(p value)	(0.000)	(0.000)	(.121)	(0.229)
R ²	0.013	0.019	0.016	0.027
Goodness of Fit (p value)	417.4 (1.000)	399.1 (1.000)	226.731 (1.000)	128.130 (1.000)
AIC	3311.3	3321.0	2188.2	1172.4
SIC	3376.3	3451.0	2302.1	1269.3

Standard errors from negative Hessian in parentheses; indicate statistically significant at the *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$ levels

Table 7 Ordered logit of perceptions of what is meant by financial literacy (Odds ratios)

	Analyse Financial Conditions	Communicate Financial Conditions	Discern Financial Choices	Respond to Everyday Events	Respond to General Economy
Ethnic Background (ref cat White British)					
White Other	1.7127 (0.6003)	1.4800 (0.4838)	0.7228 (0.2379)	1.0059 (0.3523)	0.8389 (0.2847)
Mixed White	0.6877 (0.2450)	1.1771 (0.3951)	1.1848 (0.3728)	0.6959 (0.2265)	1.0195 (0.3354)
South Asian	1.2108 (0.3259)	1.3006 (0.3378)	1.3846 (0.3455)	1.3484 (0.3728)	1.3230 (0.3405)
Black	1.3930 (0.4172)	1.3863 (0.4039)	1.6034 (0.4613)	1.0334 (0.3159)	1.1534 (0.3454)
Other Ethnic Background	0.9878 (0.3433)	0.6835 (0.2209)	1.3056 (0.4197)	0.4976** (0.1738)	0.5228* (0.1748)
Male	1.3733** (0.2128)	0.9080 (0.1336)	0.8987 (0.1311)	0.8605 (0.1339)	1.0779 (0.1613)
First Year of Study	0.6317** (0.1429)	0.9555 (0.2101)	0.7238 (0.1644)	0.7556 (0.1786)	0.6531* (0.1468)
NTU Student	1.7912** (0.4118)	1.2320 (0.2656)	1.0033 (0.2084)	1.2186 (0.2739)	0.8185 (0.1768)
Home Location (ref cat East Midlands)					
North	0.7056 (0.1711)	0.7467 (0.1764)	1.3699 (0.3161)	0.9005 (0.2222)	1.0686 (0.2508)
West Midlands	1.1548 (0.2782)	1.1817 (0.2706)	1.0918 (0.2498)	1.2570 (0.3045)	0.9820 (0.2252)
East and South East of England	1.0394 (0.2191)	0.8363 (0.1672)	1.4444* (0.2867)	1.2139 (0.2546)	1.2652 (0.2565)
South West England and the Celtic Nations	0.7819 (0.2240)	0.5491** (0.1519)	1.1241 (0.3068)	0.6792 (0.1950)	1.4354 (0.4117)
London	0.6206** (0.1432)	0.7327 (0.1626)	1.1238 (0.2490)	1.2448 (0.2942)	1.0174 (0.2311)
Workstatus of Main Breadwinner (ref cat Full-Time)					
Unemployed or Economically Inactive	0.7428 (0.2349)	0.6126 (0.1989)	0.6315 (0.1934)	1.0315 (0.3246)	2.1167** (0.6743)
Employed Part-Time	0.9347 (0.2710)	1.0473 (0.2942)	1.3244 (0.3637)	0.9925 (0.2879)	1.1774 (0.3339)
Parental Highest Education (reference category A-level)					
No Formal Education	1.9180* (0.6505)	1.2571 (0.4141)	1.3973 (0.4425)	1.1736 (0.4020)	1.1212 (0.3757)
GCSE or O-Level Equivalent	0.8685 (0.1785)	0.9603 (0.1889)	1.4494* (0.2798)	1.0280 (0.2109)	1.0177 (0.2017)
Bachelor's Degree	1.3246 (0.2514)	0.8662 (0.1571)	1.1370 (0.2069)	1.3007 (0.2509)	0.9817 (0.1818)
Postgraduate Qualifications	0.9893 (0.2306)	0.9368 (0.2106)	1.1273 (0.2470)	1.1905 (0.2788)	1.1996 (0.2738)
Household Income Less than £35,000	0.8260 (0.1533)	0.8145 (0.1431)	0.8656 (0.1506)	0.7890 (0.1437)	0.7944 (0.1415)
Any Debt Before Coming to University	1.2128 (0.4060)	1.0324 (0.3207)	1.0108 (0.3279)	1.2195 (0.4039)	0.9824 (0.3164)
Any Investments	1.0231 (0.1524)	0.8538 (0.1217)	1.4204** (0.1996)	1.2263 (0.1836)	1.1211 (0.1616)

Table 7 continued

	Analyse Financial Conditions	Communicate Financial Conditions	Discern Financial Choices	Respond to Everyday Events	Respond to General Economy
Had a Credit Card Before Coming to University	1.0364 (0.1894)	0.8411 (0.1452)	0.8181 (0.1388)	0.7571 (0.1337)	0.9039 (0.1575)
No Employment Experience	0.9747 (0.2383)	1.1976 (0.2843)	1.4428 (0.3335)	0.7828 (0.1955)	0.9205 (0.2173)
Advice from Professional Sources	1.3935*** (0.1011)	1.3785*** (0.0971)	1.1523** (0.0788)	1.4258*** (0.1035)	1.4676*** (0.1044)
Value Advice from Digital, Library and University Sources	1.1169 (0.0862)	1.1059 (0.0826)	1.1032 (0.0817)	1.0639 (0.0821)	1.3235*** (0.0998)
Value Advice from Friends and Relatives	1.2831*** (0.0952)	1.1902** (0.0857)	1.1418* (0.0786)	1.1503* (0.0856)	1.2033** (0.0881)
cut1	-4.970	-5.424	-4.934	-5.732	-7.182
cut2	-3.398	-2.993	-2.648	-3.739	-4.390
cut3	-1.631	-1.101	-0.722	-2.011	-1.846
cut4	1.024	1.039	1.029	-0.158	0.284
N	768	768	768	768	768
Likelihood Ratio-test	76.35	55.33	43.47	58.19	71.56
[d.f]	[27]	[27]	[27]	[27]	[27]
(p value)	(0.000)	(0.001)	(0.023)	(0.001)	(0.000)
R ²	0.046	0.029	0.023	0.036	0.042
AIC	1635.7	1911.1	1952.6	1612.4	1716.2
SIC	1779.6	2055.1	2096.5	1756.3	1860.2

Standard errors from negative Hessian in parentheses; indicate statistically significant at the *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$ levels

Table 8 Ordered logit regression of extent individual sources of advice are valued (Odds ratios)

	Parents	Other Relatives	Citizen's Advice Bureau	University Support Services	University Degree Courses	Internet and Social Media	Library and Books	Short Courses	Bank Manager
Ethnic Background (reference category White British)									
White Other	0.6546 (0.2216)	1.0457 (0.3316)	0.8266 (0.2692)	1.1002 (0.3478)	1.7032 (0.5582)	1.7010 (0.5579)	1.7358* (0.5592)	1.1784 (0.3825)	0.8016 (0.2657)
Mixed White	1.0060 (0.3241)	1.2561 (0.4032)	1.2501 (0.3896)	1.6607 (0.5239)	1.4128 (0.4560)	0.9847 (0.2980)	1.3326 (0.4475)	1.1424 (0.3771)	0.8270 (0.2565)
South Asian	1.2595 (0.3201)	1.9252*** (0.4861)	1.3207 (0.3263)	1.7674** (0.4424)	1.7941** (0.4478)	1.7804*** (0.4391)	2.6387*** (0.6531)	1.7571** (0.4283)	1.2252 (0.3083)
Black	0.8942 (0.2600)	1.3906 (0.3747)	1.7150** (0.4569)	1.5443 (0.4241)	2.8416*** (0.7775)	1.6315* (0.4269)	4.3930*** (1.1907)	3.1078*** (0.8371)	1.1379 (0.3061)
Other Ethnic Background	1.1975 (0.4163)	2.6436*** (0.8537)	2.0517** (0.6424)	2.4877*** (0.7981)	2.1460** (0.7130)	1.4000 (0.4556)	2.2128** (0.7221)	1.3880 (0.4495)	1.1557 (0.3785)
Male	0.6586*** (0.0981)	0.8615 (0.1213)	0.8255 (0.1160)	0.8734 (0.1242)	1.5547*** (0.2217)	1.1112 (0.1548)	1.1940 (0.1669)	0.9185 (0.1300)	0.8362 (0.1198)
First Year of Study	1.0245 (0.2269)	0.8976 (0.1914)	1.8897*** (0.4008)	2.11524*** (0.4760)	1.65933** (0.3576)	1.3945 (0.2980)	2.2763*** (0.4881)	1.4659* (0.3162)	1.1749 (0.2587)
NTU Student	3.1522*** (0.6634)	2.1858*** (0.4436)	0.6271** (0.1262)	0.9553 (0.1922)	1.6736*** (0.3352)	0.8461 (0.1649)	1.5118** (0.2968)	1.1284 (0.2213)	0.8629 (0.1743)
Home Location (reference category East Midlands)									
North of England	0.8500 (0.2009)	1.2372 (0.2772)	1.0374 (0.2356)	0.7990 (0.1827)	1.0240 (0.2314)	1.1893 (0.2654)	1.0171 (0.2308)	0.8853 (0.2034)	0.6990 (0.1628)
West Midlands	0.9749 (0.2190)	0.8083 (0.1774)	0.9517 (0.2070)	0.7954 (0.1750)	1.0177 (0.2195)	0.9582 (0.2137)	0.8063 (0.1785)	0.9065 (0.1979)	0.7990** (0.1785)
East and South East of England	0.9862 (0.1995)	0.8172 (0.1611)	1.0946 (0.2108)	0.7793 (0.1519)	1.0074 (0.1965)	0.6775* (0.1320)	0.9544 (0.1838)	0.9970 (0.1929)	0.6388*** (0.1256)
South West England and the Celtic Nations	0.9452 (0.2682)	1.1190 (0.2974)	0.7658 (0.2032)	0.8183 (0.2256)	0.7759 (0.2093)	2.0026** (0.5446)	1.1032 (0.2925)	1.0586 (0.2979)	0.4813 (0.1286)
London	1.0604 (0.2409)	0.8997 (0.1956)	0.8719 (0.1845)	0.8270 (0.1779)	1.2620 (0.2736)	0.9475 (0.2010)	0.8241 (0.1772)	0.9426 (0.2034)	0.7307 (0.1625)
Workstatus of Main Breadwinner (reference category Full-Time Employed)									
Unemployed or Economically Inactive	1.1633 (0.3781)	1.3119 (0.4111)	1.9451** (0.6316)	1.4137 (0.4540)	1.6031 (0.4950)	0.9514 (0.2812)	1.3730 (0.4290)	1.3476 (0.3915)	1.7899* (0.5558)
Employed Part-Time	0.9626 (0.2661)	1.0559 (0.2719)	1.2634 (0.3330)	1.1266 (0.3047)	1.6889** (0.4498)	1.1179 (0.2984)	1.2068 (0.3232)	0.9386 (0.2437)	1.0036 (0.2565)
Parental Highest Education (reference category A-level)									
No Formal Education	1.1592 (0.3882)	1.3866 (0.4454)	1.6229 (0.5158)	1.2399 (0.3914)	1.5977 (0.5214)	1.4846 (0.4792)	1.4902 (0.4682)	2.0036** (0.6563)	0.9281 (0.2915)
GCSE or O-Level Equivalent	0.7116* (0.1400)	0.7652 (0.1455)	0.9133 (0.1745)	0.8403 (0.1611)	0.8425 (0.1598)	0.8909 (0.1652)	1.0313 (0.1935)	0.8833 (0.1669)	0.7875 (0.1519)
Bachelor's Degree	1.0530 (0.1927)	0.6949** (0.1227)	0.9410 (0.1623)	0.8393 (0.1484)	0.8629 (0.1528)	0.8128 (0.1428)	0.7666 (0.1356)	0.9839 (0.1734)	1.1017 (0.1962)
Postgraduate Qualifications	0.9780 (0.2252)	0.6710* (0.1461)	0.7929 (0.1685)	0.6919* (0.1495)	0.6977* (0.1519)	0.6949* (0.1478)	0.7058 (0.1517)	0.6802* (0.1467)	0.8615 (0.1869)

Table 8 continued

	Parents	Other Relatives	Citizen's Advice Bureau	University Support Services	University Degree Courses	Internet and Social Media	Library and Books	Short Courses	Bank Manager
Income Less than £35,000	0.6540** (0.1148)	0.8588 (0.1456)	1.0152 (0.1679)	0.8913 (0.1534)	0.7622 (0.1293)	0.9074 (0.1524)	0.7027** (0.1188)	0.8401 (0.1418)	0.9666 (0.1676)
Any Debt Before Coming to University	0.7282 (0.2313)	1.1550 (0.3641)	1.2210 (0.3836)	1.5540 (0.4846)	1.1632 (0.3565)	2.4286*** (0.7863)	1.4631 (0.4619)	1.4750 (0.4634)	1.0567 (0.3198)
Any Investments	1.3593** (0.1942)	1.3405** (0.1848)	0.9854 (0.1345)	0.8780 (0.1212)	1.0429 (0.1431)	1.4305*** (0.1953)	0.9674 (0.1329)	1.0366 (0.1431)	1.2899* (0.1805)
Had a Credit Card Before Coming to University	1.2910 (0.2286)	1.2339 (0.2044)	0.9044 (0.1506)	1.1537 (0.1931)	1.0512 (0.1744)	0.9952 (0.1629)	1.0089 (0.1679)	0.9716 (0.1623)	1.1011 (0.1850)
No Employment Experience	1.2952 (0.3210)	0.9304 (0.2130)	0.9666 (0.2248)	1.0610 (0.2590)	1.3748 (0.3224)	0.9183 (0.2101)	1.0831 (0.2569)	1.0863 (0.2459)	1.3478 (0.3154)
cut1	-4.065	-1.966	-1.571	-2.236	-1.559	-1.355	-0.771	-1.870	-3.165
cut2	-2.169	-0.072	-0.408	-1.016	-0.064	0.214	0.653	-0.796	-2.271
cut3	-0.599	1.531	0.856	0.507	1.350	1.480	2.033	0.764	-1.126
cut4	0.992	3.237	2.626	2.446	3.054	3.193	3.831	2.617	0.410
N	768	768	768	768	768	768	768	768	768
Likelihood Ratio-test	64.5	46.6	54.8	52.3	76.1	52.7	76.8	49.8	28.9
[d.f]	[24]	[24]	[24]	[24]	[24]	[24]	[24]	[24]	[24]
(p value)	(0.000)	(0.004)	(0.000)	(0.001)	(0.000)	(0.001)	(0.000)	(0.002)	(0.224)
R ²	0.035	0.021	0.023	0.024	0.034	0.023	0.033	0.022	0.014
AIC	1830.6	2221.2	2364.5	2228.2	2245.2	2318.8	2307.8	2263.1	2120.7
SIC	1960.6	2351.2	2494.5	2338.3	2375.2	2448.8	2437.9	2393.1	2250.8

Standard errors from negative Hessian in parentheses; indicate statistically significant at the ***: $p < 0.01$; **: $p < 0.05$; *: $p < 0.1$ levels

Table 9 Principal component analysis of aspects of financial literacy valued factor loadings

	Component 1	Component 2	Component 3	Component 4	Component 5
Analyse Financial Conditions	0.468	-0.435	-0.427	0.202	0.607
Communicate Financial Conditions	0.474	-0.537	0.041	-0.094	-0.690
Discern Financial Choices	0.418	0.050	0.856	0.088	0.287
Respond to Everyday Events	0.416	0.579	-0.213	0.615	-0.261
Respond to General Economy	0.456	0.430	-0.194	-0.751	0.074
Eigenvalue	2.000	1.000	0.818	0.647	0.535
Proportion of Variance Explained	0.400	0.200	0.164	0.129	0.107
Cumulative Proportion of Variance Explained	0.400	0.600	0.764	0.893	1.000

Table 10 Rotated component matrix from principal component analysis of advice

	Component 1	Component 2	Component 3	Variance Extracted
University Support Services	0.786	0.181	0.165	67.7%
Citizen's Advice Bureau	0.782	0.123	0.070	63.2%
Short Courses in Financial Literacy	0.714	0.361	-0.137	65.9%
Bank Manager (or other financial professionals)	0.707	-0.089	-0.021	50.8%
Internet and Social Media	-0.143	0.809	0.174	70.6%
Library and books in general	0.391	0.725	-0.052	68.1%
University Degree Course	0.441	0.553	0.183	53.4%
Parents and close relatives	-0.043	-0.042	0.871	76.3%
Other relatives and friends	0.136	0.266	0.796	72.2%
Eigenvalues	2.626	1.746	1.510	
Percentage of variance	29.2%	19.4%	16.8%	

Components with Eigenvalues > 1 extracted

Table 11 Financial literacy scores with interactions of ethnicity and gender

	Model 1	Model 2	Model 3	Model 4
<u>Ethnic Background (reference category White British)</u>				
White Other	-0.1729 (0.1130)	-0.1613 (0.1135)	-0.1500 (0.1138)	-0.1461 (0.1143)
Mixed White	-0.0095 (0.1115)	0.0000 (0.1124)	-0.0173 (0.1128)	-0.0088 (0.1133)
South Asian	-0.1182 (0.0872)	-0.1233 (0.0893)	-0.1175 (0.0899)	-0.1121 (0.0902)
Black	-0.1512* (0.0896)	-0.1581* (0.0920)	-0.1380 (0.0925)	-0.1337 (0.0929)
Other Ethnic Background	-0.4333*** (0.1306)	-0.4272*** (0.1313)	-0.4194*** (0.1315)	-0.4103*** (0.1323)
Male	0.0787** (0.0355)	0.0812** (0.0356)	0.0861** (0.0361)	0.0842** (0.0364)
<u>Interaction of Gender and Ethnic Background</u>				
White Other * Male	0.0567 (0.1449)	0.0326 (0.1454)	0.0133 (0.1458)	-0.0007 (0.1462)
Mixed White * Male	-0.0941 (0.1388)	-0.1041 (0.1398)	-0.0837 (0.1406)	-0.0935 (0.1410)
South Asian * Male	-0.0243 (0.1048)	-0.0094 (0.1055)	-0.0153 (0.1059)	-0.0148 (0.1060)
Black * Male	0.0272 (0.1106)	0.0393 (0.1114)	0.0179 (0.1118)	0.0082 (0.1122)
Other Ethnic Background * Male	0.2774* (0.1569)	0.2908* (0.1581)	0.2966* (0.1582)	0.2936* (0.1585)
First Year of Study	-0.1050** (0.0427)	-0.1110*** (0.0430)	-0.1034** (0.0434)	-0.1056** (0.0439)
NTU Student	-0.0021 (0.0434)	-0.0111 (0.0438)	-0.0056 (0.0439)	0.0099 (0.0446)
<u>Home Location (reference category East Midlands)</u>				
North of England	-0.0120 (0.0478)	-0.0167 (0.0482)	-0.0167 (0.0482)	-0.0164 (0.0483)
West Midlands	-0.0214 (0.0466)	-0.0169 (0.0470)	-0.0179 (0.0470)	-0.0189 (0.0470)
East and South East of England	-0.0494 (0.0404)	-0.0468 (0.0410)	-0.0523 (0.0412)	-0.0546 (0.0413)
South West England and the Celtic Nations	-0.0127 (0.0553)	-0.0231 (0.0559)	-0.0168 (0.0560)	-0.0167 (0.0564)
London	-0.0225 (0.0448)	-0.0138 (0.0459)	-0.0107 (0.0459)	-0.0109 (0.0460)
<u>Workstatus of Main Breadwinner (reference category Full-Time Employed)</u>				
Unemployed or Economically Inactive		-0.0770 (0.0649)	-0.0673 (0.0651)	-0.0665 (0.0652)
Employed Part-Time		-0.0498 (0.0574)	-0.0463 (0.0576)	-0.0471 (0.0576)
<u>Parental Highest Education (reference category A-level)</u>				
No Formal Education		-0.0331 (0.0696)	-0.0311 (0.0698)	-0.0296 (0.0701)
GCSE or O-Level Equivalent		0.0169 (0.0406)	0.0190 (0.0406)	0.0142 (0.0407)
Bachelor's Degree		0.0771** (0.0370)	0.0751** (0.0371)	0.0729** (0.0371)

Table 11 continued

	Model 1	Model 2	Model 3	Model 4
Postgraduate Qualifications			-0.0059 (0.0463)	-0.0093 (0.0464)
Income Less than £35,000		0.0219 (0.0359)	0.0273 (0.0362)	0.0234 (0.0363)
Any Debt Before Coming to University			-0.0459 (0.0654)	-0.0483 (0.0657)
Any Investments			0.0549* (0.0295)	0.0602** (0.0296)
Had a Credit Card Before Coming to University			-0.0464 (0.0355)	-0.0432 (0.0355)
No Employment Experience			-0.0318 (0.0499)	-0.0311 (0.0499)
Value Advice from Professional Sources				0.0028 (0.0141)
Value Advice from Digital, Library and University Sources				-0.0022 (0.0151)
Value Advice from Friends and Relatives				-0.0273* (0.0145)
Constant	2.0234*** (0.0661)	2.0093*** (0.0713)	1.9730*** (0.0742)	1.9620*** (0.0751)
N	768	768	768	768
Likelihood Ratio-test	48.4	57.2	63.2	66.8
[d.f.]	[18]	[25]	[29]	[32]
(p value)	(0.000)	(0.000)	(0.000)	(0.000)
R ²	0.015	0.017	0.019	0.020
Goodness of Fit (p value)	413.3 (1.000)	404.5 (1.000)	398.520 (1.000)	394.880 (1.000)
AIC	3317.2	3322.4	3324.4	3326.8
SIC	3405.4	3443.2	3463.7	3480.0

Standard errors from negative Hessian in parentheses; indicate statistically significant at the *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$ levels

Table 12 Financial literacy scores with interactions of ethnicity and gender (Incident rate ratios)

	Model 1	Model 2	Model 3	Model 4
<u>Ethnic Background</u> (reference category White British)				
White Other	0.8412 (0.0951)	0.8511 (0.0966)	0.8607 (0.0979)	0.8641 (0.0987)
Mixed White	0.9905 (0.1104)	1.0000 (0.1124)	0.9829 (0.1109)	0.9913 (0.1123)
South Asian	0.8885 (0.0775)	0.8840 (0.0789)	0.8892 (0.0799)	0.8940 (0.0806)
Black	0.8597* (0.0770)	0.8538* (0.0786)	0.8711 (0.0806)	0.8748 (0.0812)
Other Ethnic Background	0.6483*** (0.0847)	0.6523*** (0.0857)	0.6574*** (0.0865)	0.6635*** (0.0878)
Male	1.0819** (0.0384)	1.0846** (0.0386)	1.0899** (0.0393)	1.0878** (0.0395)
<u>Interaction of Gender and Ethnic Background</u>				
White Other * Male	1.0583 (0.1533)	1.0331 (0.1502)	1.0134 (0.1478)	0.9993 (0.1461)
Mixed White * Male	0.9102 (0.1263)	0.9012 (0.1260)	0.9197 (0.1293)	0.9107 (0.1284)
South Asian * Male	0.9760 (0.1023)	0.9907 (0.1045)	0.9848 (0.1043)	0.9853 (0.1045)
Black * Male	1.0276 (0.1136)	1.0401 (0.1158)	1.0180 (0.1138)	1.0083 (0.1131)
Other Ethnic Background * Male	1.3197* (0.2071)	1.3375* (0.2114)	1.3453* (0.2129)	1.3413* (0.2126)
First Year of Study	0.9003** (0.0384)	0.8950*** (0.0385)	0.9018** (0.0391)	0.8998** (0.0395)
NTU Student	0.9979 (0.0433)	0.9889 (0.0433)	0.9944 (0.0436)	1.0100 (0.0450)
<u>Home Location</u> (reference category East Midlands)				
North of England	0.9880 (0.0472)	0.9835 (0.0474)	0.9834 (0.0474)	0.9837 (0.0475)
West Midlands	0.9788 (0.0456)	0.9833 (0.0462)	0.9823 (0.0462)	0.9813 (0.0461)
East and South East of England	0.9518 (0.0384)	0.9543 (0.0391)	0.9490 (0.0391)	0.9469 (0.0391)
South West England and the Celtic Nations	0.9873 (0.0546)	0.9772 (0.0546)	0.9833 (0.0551)	0.9835 (0.0555)
London	0.9778 (0.0438)	0.9863 (0.0453)	0.9893 (0.0454)	0.9892 (0.0455)
<u>Workstatus of Main Breadwinner</u> (reference category Full-Time Employed)				
Unemployed or Economically Inactive		0.9259 (0.0601)	0.9349 (0.0609)	0.9356 (0.0610)
Employed Part-Time		0.9514 (0.0546)	0.9548 (0.0550)	0.9540 (0.0550)
<u>Parental Highest Education</u> (reference category A-level)				
No Formal Education		0.9675 (0.0673)	0.9693 (0.0677)	0.9708 (0.0680)
GCSE or O-Level Equivalent		1.0170 (0.0412)	1.0192 (0.0414)	1.0143 (0.0413)

Table 12 continued

	Model 1	Model 2	Model 3	Model 4
Bachelor's Degree		1.0802** (0.0399)	1.0780** (0.0399)	1.0756** (0.0399)
Postgraduate Qualifications		0.9973 (0.0461)	0.9941 (0.0460)	0.9908 (0.0460)
Income Less than £35,000		1.0221 (0.0367)	1.0276 (0.0372)	1.0237 (0.0371)
Any Debt Before Coming to University			0.9552 (0.0625)	0.9529 (0.0626)
Any Investments			1.0564* (0.0311)	1.0620 (0.0315)
Had a Credit Card Before Coming to University			0.9546 (0.0339)	0.9577 (0.0340)
No Employment Experience			0.9687 (0.0483)	0.9694 (0.0484)
Value Advice from Professional Sources				1.0028 (0.0141)
Value Advice from Digital, Library and University Sources				0.9978 (0.0151)
Value Advice from Friends and Relatives				0.9731* (0.0141)
Constant	7.5636*** (0.5000)	7.4581*** (0.5315)	7.1922*** (0.5335)	7.1133*** (0.5345)
<i>N</i>	768	768	768	768
Likelihood Ratio-test	48.4	57.2	63.2	66.8
[d.f]	[18]	[25]	[29]	[32]
(<i>p</i> value)	(0.000)	(0.000)	(0.000)	(0.000)
<i>R</i> ²	0.015	0.017	0.019	0.020
Goodness of Fit (<i>p</i> value)	413.3 (1.000)	404.5 (1.000)	398.520 (1.000)	394.880 (1.000)
AIC	3317.2	3322.4	3324.4	3326.8
SIC	3405.4	3443.2	3463.7	3480.0

Standard errors from negative Hessian in parentheses; indicate statistically significant at the ****p* < 0.01; ***p* < 0.05; **p* < 0.1 levels

Table 13 Financial literacy scores with interactions of minority background and gender

	Model 1	Model 2	Model 3	Model 4
Minority Background	-0.1425*** (0.0323)	-0.1330*** (0.0352)	-0.1627*** (0.0531)	-0.1485*** (0.0558)
Male	0.0884*** (0.0298)	0.0911*** (0.0306)	0.0790** (0.0355)	0.0840** (0.0363)
Minority Background * Male			0.0309 (0.0644)	0.0233 (0.0649)
First Year of Study	-0.0987** (0.0425)	-0.0987** (0.0437)	-0.0993*** (0.0425)	-0.0993** (0.0437)
NTU Student	-0.0004 (0.0427)	0.0122 (0.0438)	-0.0005 (0.0427)	0.0119 (0.0439)
<u>Home Location</u> (reference category East Midlands)				
North of England	-0.0165 (0.0473)	-0.0201 (0.0477)	-0.0154 (0.0473)	-0.0193 (0.0478)
West Midlands	-0.0244 (0.0464)	-0.0206 (0.0468)	-0.0251 (0.0464)	-0.0210 (0.0468)
East and South East of England	-0.0520 (0.0401)	-0.0581 (0.0409)	-0.0520 (0.0401)	-0.0580 (0.0409)
South West England and the Celtic Nations	-0.0179 (0.0550)	-0.0219 (0.0561)	-0.0173 (0.0550)	-0.0217 (0.0561)
London	-0.0205 (0.0431)	-0.0105 (0.0441)	-0.0198 (0.0431)	-0.0099 (0.0441)
<u>Workstatus of Main Breadwinner</u> (reference category Full-Time Employed)				
Unemployed or Economically Inactive		-0.0720 (0.0645)		-0.0724 (0.0646)
Employed Part-Time		-0.0457 (0.0573)		-0.0448 (0.0573)
<u>Parental Highest Education</u> (reference category A-level)				
No Formal Education		-0.0219 (0.0690)		-0.0226 (0.0690)
GCSE or O-Level Equivalent		0.0119 (0.0404)		0.0116 (0.0404)
Bachelor's Degree		0.0724** (0.0370)		0.0728** (0.0370)
Postgraduate Qualifications		-0.0094 (0.0462)		-0.0091 (0.0462)
Income Less than £35,000		0.0252 (0.0358)		0.0258 (0.0358)
Any Debt Before Coming to University		-0.0566 (0.0653)		-0.0569 (0.0653)
Any Investments		0.0631** (0.0293)		0.0628** (0.0293)
Had a Credit Card Before Coming to University		-0.0416 (0.0355)		-0.0413 (0.0355)

Table 13 continued

	Model 1	Model 2	Model 3	Model 4
No Employment Experience		-0.0329 (0.0494)		-0.0319 (0.0495)
Value Advice from Professional Sources		0.0017 (0.0140)		0.0017 (0.0140)
Value Advice from Digital, Library and University Sources		-0.0036 (0.0150)		-0.0035 (0.0150)
Value Advice from Friends and Relatives		-0.0276* (0.0144)		-0.0274* (0.0144)
Constant	2.0117*** (0.0640)	1.9497*** (0.0730)	2.0184*** (0.0655)	1.9550*** (0.0745)
<i>N</i>	768	768	768	768
Likelihood Ratio-test	40.7	60.1	40.9	60.3
[d.f]	[9]	[23]	[10]	[24]
(<i>p</i> value)	(0.000)	(0.000)	(0.000)	(0.000)
<i>R</i> ²	0.012	0.018	0.012	0.018
Goodness of Fit (<i>p</i> value)	421.0 (1.000)	401.6 (1.000)	420.8 (1.000)	401.4 (1.000)
AIC	3306.9	3315.4	3308.7	3317.3
SIC	3353.3	3426.9	3359.7	3433.4

Standard errors from negative Hessian in parentheses; indicate statistically significant at the ****p* < 0.01; ***p* < 0.05; **p* < 0.1 levels.

Table 14 Financial literacy scores with interactions of minority background and gender (Incident rate ratios)

	Model 1	Model 2	Model 3	Model 4
Minority Background	0.8672*** (0.0280)	0.8755*** (0.0308)	0.8499*** (0.0451)	0.8620*** (0.0481)
Male	1.0924*** (0.0325)	1.0954*** (0.0335)	1.0823*** (0.0385)	1.0877*** (0.0395)
Minority Background * Male			1.0314 (0.0664)	1.0236 (0.0664)
First Year of Study	0.9060** (0.0385)	0.9060** (0.0396)	0.9055*** (0.0385)	0.9055** (0.0396)
NTU Student	0.9996 (0.0427)	1.0123 (0.0444)	0.9995 (0.0427)	1.0120 (0.0444)
<u>Home Location</u> (reference category East Midlands)				
North of England	0.9836 (0.0465)	0.9801 (0.0468)	0.9847 (0.0466)	0.9809 (0.0469)
West Midlands	0.9759 (0.0453)	0.9796 (0.0458)	0.9753 (0.0453)	0.9792 (0.0458)
East and South East of England	0.9493 (0.0380)	0.9436 (0.0386)	0.9494 (0.0380)	0.9436 (0.0386)
South West England and the Celtic Nations	0.9822 (0.0540)	0.9783 (0.0549)	0.9828 (0.0541)	0.9786 (0.0549)
London	0.9797 (0.0422)	0.9895 (0.0436)	0.9804 (0.0423)	0.9901 (0.0437)
<u>Workstatus of Main Breadwinner</u> (reference category Full-Time Employed)				
Unemployed or Economically Inactive		0.9306 (0.0601)		0.9302 (0.0601)
Employed Part-Time		0.9553 (0.0547)		0.9562 (0.0548)
<u>Parental Highest Education</u> (reference category A-level)				
No Formal Education		0.9783 (0.0675)		0.9777 (0.0675)
GCSE or O-Level Equivalent		1.0120 (0.0409)		1.0116 (0.0409)
Bachelor's Degree		1.0751** (0.0398)		1.0755** (0.0398)
Postgraduate Qualifications		0.9907 (0.0458)		0.9910 (0.0458)
Income Less than £35,000		1.0255 (0.0367)		1.0261 (0.0367)
Any Debt Before Coming to University		0.9450 (0.0617)		0.9447 (0.0617)
Any Investments		1.0651** (0.0312)		1.0648** (0.0312)
Had a Credit Card Before Coming to University		0.9592 (0.0340)		0.9595 (0.0341)

Table 14 continued

	Model 1	Model 2	Model 3	Model 4
No Employment Experience		0.9677 (0.0478)		0.9686 (0.0479)
Value Advice from Professional Sources		1.0017 (0.0140)		1.0017 (0.0140)
Value Advice from Digital, Library and University Sources		0.9964 (0.0149)		0.9965 (0.0149)
Value Advice from Friends and Relatives		0.9728* (0.0140)		0.9730* (0.0140)
Constant	7.4759*** (0.4783)	7.0265*** (0.5132)	7.5265*** (0.4928)	7.0638*** (0.5262)
N	768	768	768	768
Likelihood Ratio-test	40.7	60.1	40.9	60.3
[d.f]	[9]	[23]	[10]	[24]
(p value)	(0.000)	(0.000)	(0.000)	(0.000)
R ²	0.012	0.018	0.012	0.018
Goodness of Fit (p value)	421.0 (1.000)	401.6 (1.000)	420.8 (1.000)	401.4 (1.000)
AIC	3306.9	3315.4	3308.7	3317.3
SIC	3353.3	3426.9	3359.7	3433.4

Standard errors from negative Hessian in parentheses; indicate statistically significant at the *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$ levels

Table 15 Ordered logit of perceptions of what is meant by financial literacy with interactions of gender and ethnic background

	Analyse Financial Conditions	Communicate Financial Conditions	Discern Financial Choices	Respond to Everyday Events	Respond to General Economy
<u>Ethnic Background (ref cat White British)</u>					
White Other	0.8416 (0.5229)	0.7189 (0.5068)	0.2976 (0.5416)	1.1923* (0.6848)	-0.0359 (0.5204)
Mixed White	0.5813 (0.5829)	0.9060 (0.5642)	0.3935 (0.5201)	-0.3179 (0.5653)	-0.5076 (0.5774)
South Asian	-0.0746 (0.4391)	0.2087 (0.4107)	0.2836 (0.4027)	0.0350 (0.4418)	0.2753 (0.4316)
Black	0.5557 (0.4412)	0.4922 (0.4299)	0.6535 (0.4381)	-0.6059 (0.4356)	0.0299 (0.4599)
Other Ethnic Background	0.2777 (0.5568)	0.0417 (0.5461)	0.9247* (0.5385)	-0.0305 (0.5984)	-0.5223 (0.5467)
Male	0.4289** (0.1877)	0.0280 (0.1773)	0.0261 (0.1770)	-0.1413 (0.1880)	0.0513 (0.1797)
<u>Interaction of Gender and Ethnic Background</u>					
White Other * Male	-0.5366 (0.6992)	-0.5562 (0.6585)	-0.9991 (0.6768)	-1.7965** (0.8048)	-0.2564 (0.6828)
Mixed White * Male	-1.5382** (0.7317)	-1.1607* (0.7004)	-0.3477 (0.6537)	-0.0697 (0.6957)	0.7627 (0.7010)
South Asian * Male	0.4160 (0.5185)	0.0915 (0.4957)	0.0582 (0.4767)	0.3951 (0.5315)	-0.0002 (0.5058)
Black * Male	-0.3651 (0.5433)	-0.2632 (0.5333)	-0.2938 (0.5356)	1.0976** (0.5553)	0.1682 (0.5602)
Other Ethnic Background * Male	-0.4498 (0.7008)	-0.6341 (0.6695)	-1.0111 (0.6600)	-1.0393 (0.7277)	-0.2092 (0.6795)
First Year of Study	-0.4448** (0.2271)	-0.0272 (0.2209)	-0.3082 (0.2278)	-0.2828 (0.2368)	-0.4291* (0.2254)
NTU Student	0.5790** (0.2306)	0.2112 (0.2159)	0.0010 (0.2077)	0.1975 (0.2249)	-0.1988 (0.2161)
<u>Home Location (ref cat East Midlands)</u>					
North	-0.3390 (0.2439)	-0.3034 (0.2376)	0.2934 (0.2313)	-0.1048 (0.2479)	0.0520 (0.2357)
West Midlands	0.1525 (0.2421)	0.1812 (0.2304)	0.0881 (0.2302)	0.2258 (0.2448)	-0.0310 (0.2300)
East and South East of England	0.0467 (0.2115)	-0.1787 (0.2003)	0.3677* (0.1991)	0.2065 (0.2107)	0.2304 (0.2033)
South West England and the Celtic Nations	-0.2401 (0.2869)	-0.6023** (0.2779)	0.1074 (0.2730)	-0.3628 (0.2892)	0.3568 (0.2877)
London	-0.4667** (0.2326)	-0.3038 (0.2243)	0.1251 (0.2237)	0.2900 (0.2390)	0.0256 (0.2297)

Table 15 continued

	Analyse Financial Conditions	Communicate Financial Conditions	Discern Financial Choices	Respond to Everyday Events	Respond to General Economy
Workstatus of Main Breadwinner (ref cat Full-Time)					
Unemployed or Economically Inactive	-0.3368 (0.3193)	-0.5379 (0.3285)	-0.4897 (0.3079)	-0.0637 (0.3191)	0.7674** (0.3199)
Employed Part-Time	-0.1494 (0.2919)	0.0009 (0.2820)	0.2473 (0.2766)	-0.0080 (0.2934)	0.1862 (0.2850)
Parental Highest Education (reference category A-level)					
No Formal Education	0.6292* (0.3446)	0.2329 (0.3329)	0.3900 (0.3193)	0.2094 (0.3511)	0.1447 (0.3392)
GCSE or O-Level Equivalent	-0.1468 (0.2069)	-0.0439 (0.1982)	0.3772* (0.1945)	0.0086 (0.2070)	0.0316 (0.1994)
Bachelor's Degree	0.2736 (0.1907)	-0.1481 (0.1821)	0.1366 (0.1825)	0.2764 (0.1940)	-0.0047 (0.1859)
Postgraduate Qualifications	-0.0035 (0.2336)	-0.0667 (0.2254)	0.1243 (0.2199)	0.1433 (0.2361)	0.1906 (0.2287)
Household Income Less than £35,000	-0.1610 (0.1873)	-0.1932 (0.1769)	-0.1370 (0.1753)	-0.2053 (0.1843)	-0.2315 (0.1790)
Any Debt Before Coming to University	0.1952 (0.3363)	0.0401 (0.3124)	0.0009 (0.3260)	0.2217 (0.3344)	-0.0235 (0.3242)
Any Investments	0.0168 (0.1505)	-0.1671 (0.1438)	0.3568** (0.1420)	0.1876 (0.1518)	0.1299 (0.1456)
Had a Credit Card Before Coming to University	0.0258 (0.1828)	-0.1789 (0.1728)	-0.2067 (0.1701)	-0.2885 (0.1786)	-0.1008 (0.1752)
No Employment Experience	-0.0217 (0.2457)	0.1745 (0.2385)	0.3613 (0.2331)	-0.2225 (0.2527)	-0.0779 (0.2371)
Advice from Professional Sources	0.3248*** (0.0730)	0.3167*** (0.0708)	0.1400** (0.0687)	0.3601*** (0.0732)	0.3890*** (0.0717)
Value Advice from Digital, Library and University Sources	0.1043 (0.0776)	0.0942 (0.0750)	0.0929 (0.0746)	0.0391 (0.0780)	0.2810*** (0.0759)
Value Advice from Friends and Relatives					
cut1	-4.921	0.1691** (0.0721)	0.1252* (0.0691)	0.1388* (0.0751)	0.1872** (0.0734)
cut2	-3.343	-5.342	-4.839	-5.754	-7.191
cut3	-1.559	-2.907	-2.552	-3.757	-4.399
cut4	1.112	-1.013	-0.622	-2.021	-1.849
N	768	1.134	1.137	-0.143	0.285
Likelihood Ratio-test	82.9	768	768	768	768
		59.7	48.2	71.5	73.2

Table 15 continued

	Analyse Financial Conditions	Communicate Financial Conditions	Discern Financial Choices	Respond to Everyday Events	Respond to General Economy
[d,f]	[32]	[32]	[32]	[32]	[32]
(<i>p</i> value)	(0.000)	(0.002)	(0.033)	(0.000)	(0.000)
R^2	0.050	0.031	0.025	0.044	0.042
AIC	1639.1	1916.8	1957.8	1609.1	1724.7
SIC	1806.3	2084.0	2125.0	1776.3	1891.8

Standard errors from negative Hessian in parentheses; indicate statistically significant at the *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$ levels

Table 16 Ordered logit of perceptions of what is meant by financial literacy with interactions of gender and ethnic background (Odds ratios)

	Analyse Financial Conditions	Communicate Financial Conditions	Discern Financial Choices	Respond to Everyday Events	Respond to General Economy
<u>Ethnic Background (ref cat White British)</u>					
White Other	2.3202 (1.2133)	2.0522 (1.0401)	1.3467 (0.7294)	3.2945* (2.2560)	0.9648 (0.5020)
Mixed White	1.7883 (1.0424)	2.4744 (1.3960)	1.4822 (0.7709)	0.7276 (0.4114)	0.6019 (0.3476)
South Asian	0.9281 (0.4075)	1.2320 (0.5060)	1.3279 (0.5347)	1.0357 (0.4576)	1.3169 (0.5684)
Black	1.7431 (0.7692)	1.6359 (0.7034)	1.9222 (0.8421)	0.5456 (0.2376)	1.0303 (0.4739)
Other Ethnic Background	1.3201 (0.7351)	1.0426 (0.5693)	2.5212* (1.3577)	0.9700 (0.5805)	0.5932 (0.3243)
Male	1.5356** (0.2882)	1.0284 (0.1824)	1.0264 (0.1817)	0.8682 (0.1633)	1.0526 (0.1891)
<u>Interaction of Gender and Ethnic Background</u>					
White Other * Male	0.5847 (0.4088)	0.5734 (0.3776)	0.3682 (0.2492)	0.1659*** (0.1335)	0.7738 (0.5283)
Mixed White * Male	0.2148*** (0.1571)	0.3133* (0.2194)	0.7063 (0.4617)	0.9327 (0.6489)	2.1440 (1.5029)
South Asian * Male	1.5159 (0.7860)	1.0958 (0.5432)	1.0599 (0.5053)	1.4846 (0.7891)	0.9998 (0.5057)
Black * Male	0.6942 (0.3772)	0.7686 (0.4099)	0.7454 (0.3992)	2.9970*** (1.6644)	1.1831 (0.6628)
Other Ethnic Background* Male	0.6377 (0.4469)	0.5304 (0.3551)	0.3638 (0.2401)	0.3537 (0.2574)	0.8112 (0.5512)
First Year of Study	0.6409** (0.1455)	0.9732 (0.2150)	0.7348 (0.1674)	0.7537 (0.1785)	0.6511* (0.1468)
NTU Student	1.7842*** (0.4114)	1.2352 (0.2666)	1.0010 (0.2079)	1.2184 (0.2740)	0.8197 (0.1771)
<u>Home Location (ref cat East Midlands)</u>					
North	0.7125 (0.1738)	0.7383 (0.1754)	1.3410 (0.3102)	0.9005 (0.2232)	1.0533 (0.2482)
West Midlands	1.1647 (0.2819)	1.1986 (0.2761)	1.0921 (0.2515)	1.2533 (0.3068)	0.9695 (0.2230)
East and South East of England	1.0478 (0.2216)	0.8364 (0.1675)	1.4443* (0.2876)	1.2294 (0.2591)	1.2591 (0.2560)
South West England and the Celtic Nations	0.7865 (0.2256)	0.5476** (0.1521)	1.1134 (0.3039)	0.6957 (0.2012)	1.4288 (0.4110)
London	0.6271** (0.1459)	0.7380 (0.1656)	1.1333 (0.2535)	1.3364 (0.3193)	1.0260 (0.2357)
<u>Workstatus of Main Breadwinner (ref cat Full-Time)</u>					
Unemployed or Economically Inactive	0.7140 (0.2280)	0.5840 (0.1919)	0.6128 (0.1887)	0.9382 (0.2994)	2.1542** (0.6891)

Table 16 continued

	Analyse Financial Conditions	Communicate Financial Conditions	Discern Financial Choices	Respond to Everyday Events	Respond to General Economy
Employed Part-Time	0.8612 (0.2514)	1.0009 (0.2822)	1.2805 (0.3542)	0.9921 (0.2911)	1.2047 (0.3433)
<u>Parental Highest Education (reference category A-level)</u>					
No Formal Education	1.8761* (0.6465)	1.2623 (0.4202)	1.4770 (0.4716)	1.2330 (0.4329)	1.1556 (0.3920)
GCSE or O-Level Equivalent	0.8635 (0.1787)	0.9571 (0.1897)	1.4582* (0.2836)	1.0087 (0.2088)	1.0321 (0.2058)
Bachelor's Degree	1.3146 (0.2507)	0.8623 (0.1571)	1.1464 (0.2092)	1.3184 (0.2558)	0.9953 (0.1850)
Postgraduate Qualifications	0.9965 (0.2328)	0.9354 (0.2109)	1.1323 (0.2490)	1.1541 (0.2725)	1.2099 (0.2768)
Household Income Less than £35,000	0.8513 (0.1595)	0.8243 (0.1458)	0.8720 (0.1528)	0.8144 (0.1501)	0.7933 (0.1420)
Any Debt Before Coming to University	1.2156 (0.4088)	1.0409 (0.3252)	1.0009 (0.3263)	1.2481 (0.4174)	0.9768 (0.3167)
Any Investments	1.0169 (0.1530)	0.8461 (0.1217)	1.4288** (0.2029)	1.2063 (0.1832)	1.1387 (0.1658)
Had a Credit Card Before Coming to University	1.0261 (0.1876)	0.8362 (0.1445)	0.8133 (0.1384)	0.7494 (0.1338)	0.9041 (0.1584)
No Employment Experience	0.9786 (0.2404)	1.1907 (0.2840)	1.4352 (0.3346)	0.8005 (0.2023)	0.9250 (0.2194)
Advice from Professional Sources	1.3838*** (0.1010)	1.3726*** (0.0972)	1.1502** (0.0790)	1.4334*** (0.1049)	1.4754*** (0.1058)
Value Advice from Digital, Library and University Sources	1.1099 (0.0862)	1.0988 (0.0824)	1.0974 (0.0818)	1.0399 (0.0811)	1.3245*** (0.1005)
Value Advice from Friends and Relatives	1.2717*** (0.0949)	1.1843** (0.0854)	1.1334* (0.0783)	1.1489* (0.0863)	1.2059** (0.0885)
cut1	-4.921	-5.342	-4.839	-5.754	-7.191
cut2	-3.343	-2.907	-2.552	-3.757	-4.399
cut3	-1.559	-1.013	-0.622	-2.021	-1.849
cut4	1.112	1.134	1.137	-0.143	0.285
N	768	768	768	768	768
Likelihood Ratio-test	82.9	59.7	48.2	71.5	73.2
[d.f]	[32]	[32]	[32]	[32]	[32]
(p value)	(0.000)	(0.002)	(0.033)	(0.000)	(0.000)

Table 16 continued

	Analyse Financial Conditions	Communicate Financial Conditions	Discern Financial Choices	Respond to Everyday Events	Respond to General Economy
R^2	0.050	0.031	0.025	0.044	0.042
AIC	1639.1	1916.8	1957.8	1609.1	1724.7
SIC	1806.3	2084.0	2125.0	1776.3	1891.8

Standard errors from negative Hessian in parentheses; indicate statistically significant at the *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$ levels

Table 17 Ordered logit of perceptions of what is meant by financial literacy with interactions of gender and minority group membership

	Analyse Financial Conditions			Communicate Financial Conditions			Discern Financial Choices			Respond to Everyday Events			Respond to General Economy		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10					
Minority Group	0.1532 (0.1783)	0.3853 (0.2704)	0.1758 (0.1682)	0.4412* (0.2575)	0.2031 (0.1645)	0.4595* (0.2565)	-0.0882 (0.1748)	-0.0750 (0.2750)	-0.0180 (0.1693)	-0.0834 (0.2670)					
Male	0.3030** (0.1544)	0.4233** (0.1870)	-0.1059 (0.1469)	0.0290 (0.1770)	-0.1120 (0.1456)	0.0186 (0.1766)	-0.1532 (0.1550)	-0.1466 (0.1875)	0.0822 (0.1491)	0.0508 (0.1792)					
Minority * Male		-0.3628 (0.3176)		-0.4156 (0.3048)		-0.3924 (0.3006)		-0.0199 (0.3216)		0.0988 (0.3120)					
cut1	-4.967	-4.887	-5.409	-5.318	-4.976	-4.884	-5.778	-5.773	-7.199	-7.223					
cut2	-3.397	-3.316	-2.978	-2.886	-2.689	-2.597	-3.791	-3.786	-4.406	-4.430					
cut3	-1.640	-1.559	-1.091	-0.998	-0.767	-0.674	-2.073	-2.069	-1.871	-1.894					
cut4	1.001	1.086	1.039	1.135	0.976	1.071	-0.232	-0.228	0.244	0.221					
N	768	768	768	768	768	768	768	768	768	768					
Likelihood Ratio-test	72.0	73.3	51.0	52.9	39.4	41.1	51.2	51.2	65.1	65.2					
[d.f]	[23]	[24]	[23]	[24]	[23]	[24]	[23]	[24]	[23]	[24]					
(p value)	(0.000)	(0.000)	(0.001)	(0.001)	(0.018)	(0.016)	(0.001)	(0.001)	(0.000)	(0.000)					
R ²	0.044	0.044	0.027	0.028	0.020	0.021	0.032	0.032	0.038	0.038					
AIC	1632.1	1632.8	1907.4	1907.5	1948.6	1948.9	1611.4	1613.4	1714.7	1716.6					
SIC	1757.4	1762.8	2032.8	2037.6	2074.0	2079.0	1736.8	1743.4	1840.1	1846.6					

Standard errors from negative Hessian in parentheses; indicate statistically significant at the *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$ levels; controls for year of study, university, home region, parental employment, parental education, prior financial and work experience, and sources of advice valued included

Table 18 Ordered logit of perceptions of what is meant by financial literacy with interactions of gender and minority group membership (Odds Ratios)

	Analyse Financial Conditions			Communicate Financial Conditions			Discern Financial Choices			Respond to Everyday Events			Respond to General Economy		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10					
Minority Group	1.1656 (0.2078)	1.4701 (0.3976)	1.1922 (0.2006)	1.5546* (0.4003)	1.2252 (0.2015)	1.5832* (0.4061)	0.9156 (0.1601)	0.9277 (0.2551)	0.9822 (0.1662)	0.9200 (0.2456)					
Male	1.3539** (0.2091)	1.5269** (0.2855)	0.8995 (0.1322)	1.0294 (0.1822)	0.8940 (0.1302)	1.0188 (0.1799)	0.8580 (0.1330)	0.8636 (0.1619)	1.0857 (0.1619)	1.0521 (0.1886)					
Minority * Male	0.6957 (0.2209)		0.6599 (0.2011)		0.6754 (0.2030)		0.9803 (0.3153)		1.1039 (0.3444)						
cut1	-4.967	-4.887	-5.409	-5.318	-4.976	-4.884	-5.778	-5.773	-7.199	-7.223					
cut2	-3.397	-3.316	-2.978	-2.886	-2.689	-2.597	-3.791	-3.786	-4.406	-4.430					
cut3	-1.640	-1.559	-1.091	-0.998	-0.767	-0.674	-2.073	-2.069	-1.871	-1.894					
cut4	1.001	1.086	1.039	1.135	0.976	1.071	-0.232	-0.228	0.244	0.221					
N	768	768	768	768	768	768	768	768	768	768					
Likelihood Ratio-test	72.0	73.3	51.0	52.9	39.4	41.1	51.2	51.2	65.1	65.2					
[d.f]	[23]	[24]	[23]	[24]	[23]	[24]	[23]	[24]	[23]	[24]					
(p-value)	(0.000)	(0.000)	(0.001)	(0.001)	(0.018)	(0.016)	(0.001)	(0.001)	(0.000)	(0.000)					
R ²	0.044	0.044	0.027	0.028	0.020	0.021	0.032	0.032	0.038	0.038					
AIC	1632.1	1632.8	1907.4	1907.5	1948.6	1948.9	1611.4	1613.4	1714.7	1716.6					
SIC	1737.4	1762.8	2032.8	2037.6	2074.0	2079.0	1736.8	1743.4	1840.1	1846.6					

Standard errors from negative Hessian in parentheses; indicate statistically significant at the *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$ levels; controls for year of study, university, home region, parental employment, parental education, prior financial and work experience, and sources of advice valued included

Table 19 Regressions of perceptions of the combined value of financial literacy with interactions of gender and ethnic background

	Average Score					
	Principal Component 1		Principal Component 2		Principal Component 2	
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Ethnic Background (ref cat White British)						
White Other	0.0314 (0.0887)	0.2094 (0.1361)	0.1050 (0.2415)	0.5763 (0.3708)	-0.2658 (0.1782)	-0.1954 (0.2735)
Mixed White	-0.0244 (0.0860)	0.1038 (0.1454)	-0.0839 (0.2341)	0.2704 (0.3960)	-0.0373 (0.1727)	-0.4837* (0.2921)
South Asian	0.1113 (0.0682)	0.0521 (0.1109)	0.2955 (0.1858)	0.1305 (0.3021)	0.0197 (0.1371)	0.0473 (0.2228)
Black	0.0917 (0.0753)	0.1039 (0.1126)	0.2381 (0.2052)	0.2814 (0.3067)	-0.1122 (0.1514)	-0.4169* (0.2262)
Other Ethnic Background	-0.1136 (0.0884)	0.0511 (0.1409)	-0.3267 (0.2408)	0.1025 (0.3840)	-0.3302* (0.1777)	-0.3468 (0.2832)
Male	-0.0012 (0.0392)	0.0306 (0.0475)	0.0100 (0.1067)	0.0950 (0.1294)	-0.0779 (0.0787)	-0.1416 (0.0955)
Interaction of Gender and Ethnic Background						
White Other * Male		-0.3108* (0.1782)		-0.8226* (0.4855)		-0.1337 (0.3581)
Mixed White * Male		-0.1980 (0.1802)		-0.5470 (0.4910)		0.6851* (0.3622)
South Asian * Male		0.0882 (0.1310)		0.2466 (0.3568)		-0.0484 (0.2632)
Black * Male		-0.0230 (0.1376)		-0.0798 (0.3748)		0.4942* (0.2765)
Other Ethnic Background * Male		-0.2625 (0.1779)		-0.6832 (0.4846)		0.0140 (0.3574)
First Year of Study	-0.1301** (0.0592)	-0.1263** (0.0593)	-0.3602** (0.1613)	-0.3503** (0.1615)	-0.0847 (0.1190)	-0.0919 (0.1191)
NTU Student	0.0674 (0.0566)	0.0643 (0.0567)	0.1977 (0.1542)	0.1888 (0.1543)	-0.1801 (0.1138)	-0.1737 (0.1138)
Home Location (ref cat East Midlands)						
North	-0.0065 (0.0626)	-0.0103 (0.0628)	-0.0356 (0.1706)	-0.0453 (0.1711)	0.1169 (0.1258)	0.1140 (0.1262)
West Midlands	0.0486 (0.0607)	0.0484 (0.0609)	0.1334 (0.1654)	0.1326 (0.1660)	-0.0178 (0.1221)	-0.0231 (0.1224)
East and South East of England	0.0657 (0.0533)	0.0682 (0.0533)	0.1654 (0.1451)	0.1725 (0.1453)	0.1866* (0.1070)	0.1854* (0.1072)
South West England and the Celtic Nations	-0.0682 (0.0740)	-0.0686 (0.0741)	-0.1873 (0.2017)	-0.1882 (0.2017)	0.1429 (0.1488)	0.1455 (0.1488)
London	-0.0278 (0.0588)	-0.0181 (0.0592)	-0.0943 (0.1601)	-0.0689 (0.1613)	0.2197* (0.1181)	0.2368** (0.1190)
Workstatus of Main Breadwinner (ref cat Full-Time)						
Unemployed or Economically Inactive	-0.0740 (0.0804)	-0.0866 (0.0808)	-0.1795 (0.2189)	-0.2126 (0.2201)	0.3660** (0.1615)	0.3596** (0.1624)
Employed Part-Time	0.0390 (0.0725)	0.0246 (0.0728)	0.0963 (0.1976)	0.0571 (0.1985)	0.0350 (0.1458)	0.0629 (0.1464)
Parental Highest Education (reference category A-level)						

Table 19 continued

	Average Score		Principal Component 1			Principal Component 2		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6		
	No Formal Education	0.1314 (0.0861)	0.1386 (0.0868)	0.3627 (0.2344)	0.3801 (0.2364)	-0.1082 (0.1729)	-0.0868 (0.1743)	
GCSE or O-Level Equivalent	0.0392 (0.0523)	0.0395 (0.0525)	0.0871 (0.1424)	0.0882 (0.1430)	0.0816 (0.1050)	0.0823 (0.1055)		
Bachelor's Degree	0.0386 (0.0482)	0.0409 (0.0483)	0.1057 (0.1313)	0.1117 (0.1316)	0.0713 (0.0969)	0.0802 (0.0971)		
Postgraduate Qualifications	0.0357 (0.0594)	0.0366 (0.0595)	0.0910 (0.1618)	0.0939 (0.1620)	0.1497 (0.1193)	0.1428 (0.1195)		
Household Income Less than £35,000	-0.0818* (0.0465)	-0.0744 (0.0468)	-0.2246* (0.1267)	-0.2046 (0.1274)	-0.0227 (0.0935)	-0.0237 (0.0940)		
Any Debt Before Coming to University	0.0104 (0.0822)	0.0093 (0.0825)	0.0285 (0.2240)	0.0254 (0.2247)	0.0400 (0.1653)	0.0463 (0.1657)		
Any Investments	0.0531 (0.0378)	0.0514 (0.0381)	0.1339 (0.1029)	0.1295 (0.1037)	0.1251* (0.0759)	0.1263* (0.0765)		
Had a Credit Card Before Coming to University	-0.0742 (0.0455)	-0.0761* (0.0455)	-0.1924 (0.1238)	-0.1976 (0.1240)	-0.0518 (0.0914)	-0.0530 (0.0914)		
No Employment Experience	0.0335 (0.0629)	0.0348 (0.0631)	0.0763 (0.1712)	0.0798 (0.1718)	-0.1004 (0.1263)	-0.0966 (0.1267)		
Advice from Professional Sources	0.1150*** (0.0182)	0.1137*** (0.0182)	0.3203*** (0.0495)	0.3166*** (0.0497)	0.0325 (0.0365)	0.0370 (0.0367)		
Value Advice from Digital, Library and University Sources	0.0502*** (0.0194)	0.0469** (0.0195)	0.1398*** (0.0529)	0.1312** (0.0531)	0.0163 (0.0390)	0.0137 (0.0392)		
Value Advice from Friends and Relatives	0.0753*** (0.0187)	0.0727*** (0.0188)	0.2088*** (0.0510)	0.2017*** (0.0511)	-0.0270 (0.0376)	-0.0212 (0.0377)		
Constant	4.0988*** (0.0960)	4.0755*** (0.0979)	0.0335 (0.2614)	-0.0281 (0.2667)	0.0916 (0.1929)	0.1287 (0.1967)		
N	768	768	768	768	768	768		
F-test	3.6 (0.000)	3.3 (0.000)	3.7 (0.000)	3.3 (0.000)	1.2 (0.266)	1.2 (0.211)		
R ²	0.116	0.124	0.119	0.127	0.041	0.050		
AIC	1130.7	1133.6	2669.8	2673.0	2202.8	2205.5		
SIC	1260.8	1286.9	2799.9	2826.3	2332.9	2358.8		

Standard errors from negative Hessian in parentheses; indicate statistically significant at the *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$ levels; please see Table 9 for factor loadings of the Principal Components 1 and 2

Table 20 Regressions of perceptions of the combined value of financial literacy with interactions of gender and minority group background

	Average Score					
	Principal Component 1			Principal Component 2		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Minority Group	0.0332 (0.0446)	0.0941 (0.0687)	0.0835 (0.1215)	0.2472 (0.1871)	-0.1226 (0.0895)	-0.2587 (0.1378)
Male	-0.0019 (0.0392)	0.0296 (0.0476)	0.0079 (0.1067)	0.0926 (0.1297)	-0.0736 (0.0786)	-0.1440* (0.0955)
Minority * Male		-0.0940 (0.0807)		-0.2527 (0.2199)		0.2101 (0.1619)
First Year of Study	-0.1300** (0.0591)	-0.1277** (0.0592)	-0.3591** (0.1611)	-0.3528** (0.1612)	-0.0813 (0.1187)	-0.0865 (0.1187)
NTU Student	0.0521 (0.0558)	0.0529 (0.0558)	0.1570 (0.1519)	0.1593 (0.1519)	-0.2059* (0.1119)	-0.2078* (0.1119)
<u>Home Location</u> (ref cat East Midlands)						
North	-0.0111 (0.0623)	-0.0144 (0.0623)	-0.0504 (0.1696)	-0.0593 (0.1697)	0.1193 (0.1249)	0.1267 (0.1250)
West Midlands	0.0471 (0.0608)	0.0488 (0.0608)	0.1288 (0.1655)	0.1333 (0.1655)	-0.0214 (0.1219)	-0.0252 (0.1219)
East and South East of England	0.0651 (0.0530)	0.0650 (0.0530)	0.1629 (0.1445)	0.1625 (0.1444)	0.1832* (0.1064)	0.1835* (0.1064)
South West England and the Celtic Nations	-0.0730 (0.0739)	-0.0745 (0.0739)	-0.2009 (0.2013)	-0.2051 (0.2013)	0.1311 (0.1483)	0.1346 (0.1483)
London	-0.0167 (0.0566)	-0.0193 (0.0567)	-0.0652 (0.1543)	-0.0722 (0.1544)	0.2181* (0.1136)	0.2239** (0.1137)
<u>Workstatus of Main Breadwinner</u> (ref cat Full-Time)						
Unemployed or Economically Inactive	-0.0861 (0.0800)	-0.0850 (0.0800)	-0.2151 (0.2181)	-0.2121 (0.2180)	0.3584** (0.1606)	0.3559** (0.1606)
Employed Part-Time	0.0428 (0.0726)	0.0390 (0.0726)	0.1060 (0.1977)	0.0956 (0.1979)	0.0415 (0.1457)	0.0501 (0.1457)
<u>Parental Highest Education</u> (reference category A-level)						
No Formal Education	0.1282 (0.0856)	0.1308 (0.0856)	0.3551 (0.2331)	0.3623 (0.2331)	-0.1186 (0.1717)	-0.1245 (0.1717)
GCSE or O-Level Equivalent	0.0371 (0.0522)	0.0386 (0.0522)	0.0824 (0.1423)	0.0864 (0.1423)	0.0736 (0.1048)	0.0703 (0.1048)
Bachelor's Degree	0.0385 (0.0482)	0.0370 (0.0483)	0.1056 (0.1314)	0.1014 (0.1315)	0.0670 (0.0968)	0.0704 (0.0968)
Postgraduate Qualifications	0.0275 (0.0593)	0.0262 (0.0593)	0.0688 (0.1615)	0.0653 (0.1615)	0.1336 (0.1190)	0.1365 (0.1190)
Household Income Less than £35,000	-0.0739 (0.0462)	-0.0765* (0.0462)	-0.2044 (0.1259)	-0.2114* (0.1260)	-0.0121 (0.0927)	-0.0063 (0.0928)
Any Debt Before Coming to University	0.0084 (0.0822)	0.0095 (0.0821)	0.0224 (0.2238)	0.0253 (0.2238)	0.0312 (0.1649)	0.0288 (0.1648)

Table 20 continued

	Average Score		Principal Component 1			Principal Component 2		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 6	
Any Investments	0.0565 (0.0378)	0.0576 (0.0378)	0.1435 (0.1029)	0.1463 (0.1029)	0.1307* (0.0758)	0.1283* (0.0758)	0.1283* (0.0758)	
Had a Credit Card Before Coming to University	-0.0728 (0.0455)	-0.0744 (0.0455)	-0.1885 (0.1240)	-0.1928 (0.1240)	-0.0524 (0.0913)	-0.0488 (0.0913)	-0.0488 (0.0913)	
No Employment Experience	0.0335 (0.0625)	0.0294 (0.0626)	0.0751 (0.1702)	0.0640 (0.1704)	-0.1057 (0.1254)	-0.0965 (0.1255)	-0.0965 (0.1255)	
Advice from Professional Sources	0.1148*** (0.0181)	0.1151*** (0.0181)	0.3193*** (0.0494)	0.3200*** (0.0494)	0.0328 (0.0364)	0.0323 (0.0364)	0.0323 (0.0364)	
Value Advice from Digital, Library and University Sources	0.0533*** (0.0193)	0.0529*** (0.0193)	0.1482*** (0.0527)	0.1471*** (0.0527)	0.0163 (0.0388)	0.0172 (0.0388)	0.0172 (0.0388)	
Value Advice from Friends and Relatives	0.0738*** (0.0187)	0.0727*** (0.0187)	0.2043*** (0.0508)	0.2014*** (0.0509)	-0.0258 (0.0375)	-0.0234 (0.0375)	-0.0234 (0.0375)	
Constant	4.1122*** (0.0953)	4.0900*** (0.0972)	0.0695 (0.2597)	0.0096 (0.2648)	0.1131 (0.1913)	0.1629 (0.1951)	0.1629 (0.1951)	
<i>N</i>	768	768	768	768	768	768	768	
<i>F</i> -test	4.0 (0.000)	3.9 (0.000)	4.1 (0.000)	3.9 (0.000)	1.2 (0.250)	1.2 (0.227)	1.2 (0.227)	
<i>R</i> ²	0.109	0.111	0.111	0.113	0.035	0.038	0.038	
AIC	1129.1	1129.7	2668.3	2669.0	2199.0	2199.2	2199.2	
SIC	1240.5	1245.7	2779.8	2785.1	2310.4	2315.3	2315.3	

Standard errors from negative Hessian in parentheses; indicate statistically significant at the ****p* < 0.01, ***p* < 0.05, **p* < 0.1 levels; please see Table 9 for factor loadings of the Principal Components 1 and 2

Table 21 Ordered logit regression of extent individual sources of advice are valued with gender and ethnicity interactions

	Parents	Other Relatives	Citizen's Advice Bureau	University Support Services	University Degree Courses	Internet and Social Media	Library and Books	Short Courses	Bank Manager
Ethnic Background (ref cat White British)									
White Other	0.1365 (0.5469)	0.5368 (0.4986)	-0.6262 (0.5011)	-0.2326 (0.5067)	0.4751 (0.5216)	1.1065** (0.4839)	0.8227 (0.5201)	-0.1392 (0.5085)	-0.3525 (0.5187)
Mixed White	0.3549 (0.5920)	1.1726** (0.5489)	1.0303* (0.5341)	1.1491** (0.5626)	1.1584** (0.5600)	0.1245 (0.5128)	0.9127 (0.5997)	1.3383** (0.5945)	-0.4440 (0.4940)
South Asian	0.2285 (0.4308)	0.6861* (0.3995)	0.2569 (0.4207)	0.2187 (0.4164)	0.2746 (0.4051)	0.8697** (0.3770)	0.5579 (0.3838)	0.4153 (0.3852)	-0.2350 (0.4020)
Black	-0.1550 (0.4236)	0.9752** (0.4092)	0.4358 (0.4143)	0.2632 (0.4066)	0.7933* (0.4265)	0.0354 (0.3946)	0.8852** (0.4096)	0.8751** (0.4063)	-0.0764 (0.4039)
Other Ethnic Background	0.3764 (0.5998)	1.5515** (0.5071)	0.9928** (0.4880)	1.2500** (0.5094)	1.5781*** (0.5338)	0.5464 (0.5206)	1.5436*** (0.5040)	0.8042 (0.5244)	0.2834 (0.5195)
Male	-0.3408* (0.1798)	0.0965 (0.1712)	-0.1647 (0.1691)	-0.1633 (0.1723)	0.4803*** (0.1712)	0.1590 (0.1707)	0.1501 (0.1687)	-0.0665 (0.1716)	-0.2911* (0.1757)
Interaction of Gender and Ethnic Background									
White Other * Male	-0.9501 (0.7022)	-0.8036 (0.6426)	0.7527 (0.6583)	0.5142 (0.6448)	0.0704 (0.6679)	-1.0353 (0.6454)	-0.4626 (0.6549)	0.4915 (0.6585)	0.1904 (0.6702)
Mixed White * Male	-0.5039 (0.7076)	-1.4402** (0.6770)	-1.2238* (0.6560)	-0.9500 (0.6813)	-1.2232* (0.6843)	-0.2127 (0.6357)	-0.9187 (0.7227)	-1.7044** (0.7084)	0.3976 (0.6348)
South Asian * Male	0.0048 (0.5023)	-0.0406 (0.4831)	0.0258 (0.4943)	0.5097 (0.4897)	0.4496 (0.4865)	-0.4767 (0.4665)	0.6609 (0.4719)	0.2264 (0.4677)	0.6611 (0.4849)
Black * Male	0.0812 (0.5348)	-1.0418** (0.5026)	0.1789 (0.4981)	0.2766 (0.5028)	0.3895 (0.5218)	0.7674 (0.4837)	0.9617* (0.5029)	0.4304 (0.4924)	0.2999 (0.4914)
Other Ethnic Background * Male	-0.2850 (0.7293)	-0.9290 (0.6501)	-0.4577 (0.6288)	-0.5729 (0.6456)	-1.3468** (0.6744)	-0.3160 (0.6594)	-1.2818** (0.6470)	-0.7827 (0.6623)	-0.2591 (0.6641)
First Year of Study	0.0280 (0.2221)	-0.0920 (0.2140)	0.6625*** (0.2127)	0.7851*** (0.2218)	0.5377** (0.2176)	0.3383 (0.2136)	0.8476*** (0.2163)	0.3942* (0.2165)	0.1647 (0.2203)
NTU Student	1.1440*** (0.2110)	0.7672*** (0.2029)	-0.4554** (0.2017)	-0.0467 (0.2022)	0.5032** (0.2012)	-0.1658 (0.1958)	0.4102** (0.1970)	0.1114 (0.1972)	-0.1488 (0.2025)
Home Location (ref cat East Midlands)									
North	-0.1655 (0.2371)	0.2005 (0.2257)	0.0495 (0.2284)	-0.2154 (0.2299)	0.0145 (0.2272)	0.1830 (0.2239)	0.0233 (0.2277)	-0.1006 (0.2306)	-0.3591 (0.2338)
West Midlands	-0.0272 (0.2261)	-0.2150 (0.2205)	-0.0070 (0.2184)	-0.2099 (0.2216)	0.0387 (0.2175)	-0.0301 (0.2240)	-0.2190 (0.2237)	-0.0577 (0.2204)	-0.2355 (0.2246)

Table 21 continued

	Parents	Other Relatives	Citizen's Advice Bureau	University Support Services	University Degree Courses	Internet and Social Media	Library and Books	Short Courses	Bank Manager
East and South East of England	-0.0022 (0.2026)	-0.1995 (0.1975)	0.0847 (0.1934)	-0.2539 (0.1961)	0.0057 (0.1959)	-0.3738* (0.1956)	-0.0388 (0.1937)	0.0003 (0.1941)	-0.4526** (0.1977)
South West England and the Celtic Nations	-0.0430 (0.2841)	0.1022 (0.2666)	-0.2634 (0.2667)	-0.1990 (0.2765)	-0.2575 (0.2715)	0.7189*** (0.2723)	0.1077 (0.2655)	0.0850 (0.2818)	-0.7263*** (0.2676)
London	0.0836 (0.2285)	-0.1219 (0.2194)	-0.1375 (0.2136)	-0.1805 (0.2168)	0.2603 (0.2184)	-0.0014 (0.2146)	-0.1207 (0.2164)	-0.0535 (0.2178)	-0.2955 (0.2249)
Workstatus of Main Breadwinner (ref cat Full-Time)									
Unemployed or Economically Inactive	0.1164 (0.3275)	0.2726 (0.3119)	0.6287* (0.3262)	0.2897 (0.3243)	0.4090 (0.3106)	-0.1058 (0.2975)	0.2097 (0.3126)	0.2162 (0.2962)	0.5718* (0.3127)
Employed Part-Time	-0.0759 (0.2784)	-0.0050 (0.2603)	0.1808 (0.2644)	0.0695 (0.2724)	0.4498* (0.2695)	0.0986 (0.2691)	0.1308 (0.2694)	-0.1231 (0.2601)	0.0123 (0.2581)
Parental Highest Education (reference category A-level)									
No Formal Education	0.1339 (0.3389)	0.3451 (0.3262)	0.4895 (0.3218)	0.2581 (0.3192)	0.5488 (0.3294)	0.4140 (0.3240)	0.4459 (0.3153)	0.7317** (0.3207)	-0.0504 (0.3187)
GCSE or O-Level Equivalent	-0.3350* (0.1982)	-0.2540 (0.1912)	-0.1291 (0.1925)	-0.1994 (0.1932)	-0.2122 (0.1907)	-0.1275 (0.1865)	-0.0039 (0.1886)	-0.1714 (0.1901)	-0.2425 (0.1942)
Bachelor's Degree	0.0500 (0.1839)	-0.3639** (0.1776)	-0.0826 (0.1735)	-0.1722 (0.1780)	-0.1482 (0.1775)	-0.2175 (0.1768)	-0.2555 (0.1775)	-0.0312 (0.1769)	0.1122 (0.1788)
Postgraduate Qualifications	-0.0321 (0.2312)	-0.3797* (0.2189)	-0.2288 (0.2132)	-0.3484 (0.2168)	-0.3411 (0.2185)	-0.3983* (0.2134)	-0.3266 (0.2164)	-0.3870* (0.2160)	-0.1336 (0.2176)
Household Income Less than £35,000	-0.4131** (0.1769)	-0.1417 (0.1704)	0.0309 (0.1667)	-0.0933 (0.1735)	-0.2478 (0.1708)	-0.1156 (0.1689)	-0.3165* (0.1699)	-0.1441 (0.1709)	-0.0149 (0.1746)
Any Debt Before	-0.2897 (0.3206)	0.1335 (0.3168)	0.2090 (0.3154)	0.4323 (0.3122)	0.1384 (0.3076)	0.9422*** (0.3125)	0.3509 (0.3169)	0.4066 (0.3161)	0.0258 (0.3040)

Table 21 continued

	Parents	Other Relatives	Citizen's Advice Bureau	University Support Services	University Degree Courses	Internet and Social Media	Library and Books	Short Courses	Bank Manager
Coming to University	0.3001** (0.1440)	0.3018** (0.1392)	-0.0651 (0.1381)	-0.1624 (0.1396)	-0.0025 (0.1391)	0.3384** (0.1379)	-0.0804 (0.1391)	-0.0158 (0.1398)	0.2563* (0.1414)
Any Investments	0.2414 (0.1777)	0.2026 (0.1661)	-0.0965 (0.1670)	0.1537 (0.1677)	0.0653 (0.1663)	-0.0197 (0.1640)	0.0118 (0.1673)	-0.0174 (0.1673)	0.1100 (0.1688)
Had a Credit Card Before Coming to University	0.2462 (0.2494)	-0.0811 (0.2304)	-0.0477 (0.2323)	0.0713 (0.2445)	0.3413 (0.2344)	-0.1013 (0.2304)	0.0964 (0.2362)	0.0748 (0.2277)	0.3297 (0.2352)
No Employment Experience	-4.026	-1.817	-1.562	-2.259	-1.555	-1.339	-0.796	-1.899	-3.227
cut1	-2.125	0.088	-0.396	-1.035	-0.057	0.237	0.631	-0.823	-2.333
cut2	-0.552	1.706	0.876	0.490	1.365	1.515	2.021	0.747	-1.187
cut3	1.042	3.427	2.654	2.438	3.086	3.236	3.854	2.622	0.353
cut4	768	768	768	768	768	768	768	768	768
Likelihood Ratio-test	67.0	57.3	60.5	57.4	85.2	59.8	89.4	58.9	31.5
[d.f]	[29]	[29]	[29]	[29]	[29]	[29]	[29]	[29]	[29]
(p value)	(0.000)	(0.001)	(0.001)	(0.001)	(0.000)	(0.001)	(0.000)	(0.001)	(0.341)
R ²	0.056	0.026	0.026	0.026	0.038	0.026	0.038	0.026	0.015
AIC	1838.1	2220.5	2368.8	2233.1	2246.1	2321.7	2305.2	2264.0	2128.1
SIC	1991.3	2373.7	2522.1	2386.4	2399.3	2475.0	2458.5	2417.2	2281.3

Standard errors from negative Hessian in parentheses; indicate statistically significant at the *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$ levels

Table 22 Ordered logit regression of extent individual sources of advice are valued with gender and ethnicity interactions (Odds Ratios)

	Parents	Other Relatives	Citizen's Advice Bureau	University Support Services	University Degree Courses	Internet and Social Media	Library and Books	Short Courses	Bank Manager
Ethnic Background (ref cat White British)									
White Other	1.1463 (0.6269)	1.7105 (0.8528)	0.5346 (0.2679)	0.7925 (0.4016)	1.6082 (0.8388)	3.0236** (1.4630)	2.2767 (1.1842)	0.8701 (0.4424)	0.7029 (0.3646)
Mixed White	1.4260 (0.8442)	3.2303** (1.7732)	2.8018* (1.4966)	3.1553** (1.7750)	3.1847** (1.7833)	1.1326 (0.5808)	2.4910 (1.4938)	3.8124** (2.2665)	0.6414 (0.3169)
South Asian	1.2567 (0.5414)	1.9859* (0.7933)	1.2929 (0.5439)	1.2444 (0.5182)	1.3160 (0.5331)	2.3863** (0.8996)	1.7471 (0.6705)	1.5148 (0.5835)	0.7906 (0.3178)
Black	0.8564 (0.3628)	2.6517** (1.0852)	1.5462 (0.6406)	1.3011 (0.5290)	2.2106* (0.9429)	1.0361 (0.4089)	2.4234** (0.9926)	2.3992 (0.9748)	0.9265 (0.3742)
Other Ethnic Background	1.4571 (0.8739)	4.7187*** (2.3928)	2.6987** (1.3170)	3.4904** (1.7781)	4.8458*** (2.5868)	1.7270 (0.8990)	4.6812*** (2.3594)	2.2350** (1.1721)	1.3277 (0.6897)
Male	0.7112* (0.1279)	1.1013 (0.1886)	0.8482 (0.1434)	0.8493 (0.1463)	1.6166*** (0.2768)	1.1724 (0.2001)	1.1619 (0.1960)	0.9357 (0.1606)	0.7474* (0.1314)
Interaction of Gender and Ethnic Background									
White Other * Male	0.3867 (0.2715)	0.4477 (0.2877)	2.1227 (1.3973)	1.6723 (1.0782)	1.0729 (0.7166)	0.3551 (0.2292)	0.6296 (0.4124)	1.6347 (1.0764)	1.2097 (0.8108)
Mixed White * Male	0.6042 (0.4275)	0.2369** (0.1604)	0.2941* (0.1929)	0.3868 (0.2635)	0.2943* (0.2014)	0.8084 (0.5139)	0.3991 (0.2884)	0.1819** (0.1289)	1.4882 (0.9447)
South Asian * Male	1.0048 (0.5047)	0.9602 (0.4639)	1.0261 (0.5072)	1.6649 (0.8153)	1.5678 (0.7627)	0.6208 (0.2896)	1.9365 (0.9139)	1.2541 (0.5865)	1.9368 (0.9391)
Black * Male	1.0846 (0.5800)	0.3528** (0.1773)	1.1959 (0.5956)	1.3186 (0.6630)	1.4763 (0.7703)	2.1541 (1.0419)	2.6162* (1.3156)	1.5378 (0.7572)	1.3498 (0.6632)
Other Ethnic Background * Male	0.7520 (0.5485)	0.3950 (0.2568)	0.6327 (0.3978)	0.5639 (0.3640)	0.2601** (0.1754)	0.7291 (0.4808)	0.2775** (0.1796)	0.4572 (0.3028)	0.7717 (0.5125)
First Year of Study	1.0284 (0.2284)	0.9121 (0.1952)	1.9395*** (0.4125)	2.1925*** (0.4863)	1.7120** (0.3726)	1.4025 (0.2995)	2.3341*** (0.5049)	1.4832* (0.3212)	1.1791 (0.2597)
NTU Student	3.1392*** (0.6624)	2.1537*** (0.4369)	0.6342** (0.1279)	0.9544 (0.1930)	1.6540** (0.3328)	0.8472 (0.1659)	1.5071** (0.2970)	1.1178 (0.2204)	0.8618 (0.1745)
Home Location (ref cat East Midlands)									
North	0.8475 (0.2009)	1.2221 (0.2758)	1.0507 (0.2400)	0.8062 (0.1854)	1.0146 (0.2306)	1.2008 (0.2688)	1.0236 (0.2331)	0.9043 (0.2085)	0.6983 (0.1633)
West Midlands	0.9732 (0.2200)	0.8066 (0.1779)	0.9931 (0.2169)	0.8106 (0.1796)	1.0395 (0.2261)	0.9703 (0.2174)	0.8033 (0.1797)	0.9439 (0.2080)	0.7902 (0.1774)
East and South East of England	0.9978 (0.2021)	0.8191 (0.1618)	1.0883 (0.2104)	0.7758 (0.1521)	1.0057 (0.1970)	0.6881* (0.1346)	0.9620 (0.1864)	1.0003 (0.1941)	0.6360** (0.1257)
South West England and the Celtic Nations	0.9579 (0.2721)	1.1076 (0.2953)	0.7684 (0.2049)	0.8195 (0.2266)	0.7730 (0.2099)	2.0521*** (0.5588)	1.1137 (0.2957)	1.0888 (0.3068)	0.4837*** (0.1294)
London	1.0872 (0.2484)	0.8852 (0.1942)	0.8715 (0.1861)	0.8349 (0.1810)	1.2974 (0.2833)	0.9986 (0.2143)	0.8863 (0.1918)	0.9670 (0.2106)	0.7442 (0.1674)

Table 22 continued

	Parents	Other Relatives	Citizen's Advice Bureau	University Support Services	University Degree Courses	Internet and Social Media	Library and Books	Short Courses	Bank Manager
Workstatus of Main Breadwinner (ref cat Full-Time)									
Unemployed or Economically Inactive	1.1234 (0.3679)	1.3134 (0.4096)	1.8751* (0.6117)	1.3360 (0.4332)	1.5053 (0.4676)	0.8996 (0.2677)	1.2333 (0.3855)	1.2414 (0.3677)	1.7715* (0.5539)
Employed Part-Time	0.9269 (0.2580)	0.9950 (0.2590)	1.1982 (0.3168)	1.0720 (0.2920)	1.5681* (0.4226)	1.1036 (0.2969)	1.1397 (0.3071)	0.8842 (0.2299)	1.0124 (0.2613)
Parental Highest Education (reference category A-level)									
No Formal Education	1.1433 (0.3875)	1.4121 (0.4606)	1.6316 (0.5251)	1.2944 (0.4131)	1.7313* (0.5703)	1.5129 (0.4901)	1.5619 (0.4925)	2.0785** (0.6666)	0.9508 (0.3031)
GCESE or O-Level Equivalent	0.7153* (0.1417)	0.7757 (0.1483)	0.8789 (0.1692)	0.8192 (0.1583)	0.8088 (0.1543)	0.8803 (0.1641)	0.9961 (0.1879)	0.8424 (0.1601)	0.7847 (0.1524)
Bachelor's Degree	1.0512 (0.1933)	0.6949** (0.1234)	0.9207 (0.1597)	0.8418 (0.1498)	0.8623 (0.1530)	0.8045 (0.1422)	0.7745 (0.1375)	0.9692 (0.1715)	1.1187 (0.2001)
Postgraduate Qualifications	0.9684 (0.2239)	0.6841* (0.1497)	0.7955 (0.1696)	0.7058 (0.1530)	0.7110 (0.1554)	0.6715* (0.1433)	0.7214 (0.1561)	0.6791* (0.1467)	0.8749 (0.1904)
Household Income Less than £35,000	0.6616** (0.1170)	0.8679 (0.1479)	1.0313 (0.1719)	0.9109 (0.1581)	0.7805 (0.1333)	0.8909 (0.1504)	0.7287* (0.1238)	0.8658 (0.1480)	0.9852 (0.1720)
Any Debt Before Coming to University	0.7485 (0.2400)	1.1428 (0.3621)	1.2324 (0.3887)	1.5408 (0.4810)	1.1484 (0.3533)	2.5656*** (0.8017)	1.4203 (0.4501)	1.5017 (0.4747)	1.0261 (0.3119)
Any Investments	1.3499** (0.1944)	1.3524** (0.1882)	0.9463 (0.1307)	0.8501 (0.1187)	0.9975 (0.1387)	1.4027** (0.1935)	0.9227 (0.1284)	0.9843 (0.1376)	1.2922* (0.1827)
Had a Credit Card Before Coming to University	1.2730 (0.2262)	1.2246 (0.2034)	0.9080 (0.1517)	1.1662 (0.1956)	1.0674 (0.1775)	0.9805 (0.1608)	1.0119 (0.1692)	0.9827 (0.1644)	1.1162 (0.1884)
No Employment Experience	1.2791 (0.3190)	0.9221 (0.2125)	0.9535 (0.2215)	1.0739 (0.2626)	1.4068 (0.3298)	0.9036 (0.2082)	1.1012 (0.2601)	1.0777 (0.2453)	1.3905 (0.3270)
cut1	-4.026	-1.817	-1.562	-2.259	-1.555	-1.339	-0.796	-1.899	-3.227
cut2	-2.125	0.088	-0.396	-1.035	-0.057	0.237	0.631	-0.823	-2.333
cut3	-0.552	1.706	0.876	0.490	1.365	1.515	2.021	0.747	-1.187
cut4	1.042	3.427	2.654	2.438	3.086	3.236	3.854	2.622	0.353
N	768	768	768	768	768	768	768	768	768
Likelihood Ratio-test	67.0	57.3	60.5	57.4	85.2	59.8	89.4	58.9	31.5

Table 22 continued

	Parents	Other Relatives	Citizen's Advice Bureau	University Support Services	University Degree Courses	Internet and Social Media	Library and Books	Short Courses	Bank Manager
[d.f]	[29]	[29]	[29]	[29]	[29]	[29]	[29]	[29]	[29]
(p value)	(0.000)	(0.001)	(0.001)	(0.001)	(0.000)	(0.001)	(0.000)	(0.001)	(0.341)
R ²	0.036	0.026	0.026	0.026	0.038	0.026	0.038	0.026	0.015
AIC	1838.1	2220.5	2368.8	2233.1	2246.1	2321.7	2305.2	2264.0	2128.1
SIC	1991.3	2373.7	2522.1	2386.4	2399.3	2475.0	2458.5	2417.2	2281.3

Standard errors from negative Hessian in parentheses; indicate statistically significant at the *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$ levels

Table 23 Ordered logit regression of extent individual sources of advice are valued with gender and minority group membership interactions

	Parents			Other Relatives			Citizen's Advice Bureau			University Support Services			University Degree Courses		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10					
Minority Group	-0.0005 (0.1665)	0.1231 (0.2641)	0.4452*** (0.1596)	0.9219*** (0.2469)	0.3197** (0.1572)	0.3748 (0.2481)	0.4950*** (0.1611)	0.4389* (0.2510)	0.6666*** (0.1608)	0.7551*** (0.2520)					
Male	-0.4062*** (0.1484)	-0.3449* (0.1795)	-0.1523 (0.1406)	0.0937 (0.1709)	-0.1995 (0.1402)	-0.1725 (0.1686)	-0.1348 (0.1419)	-0.1632 (0.1719)	0.4338*** (0.1425)	0.4768*** (0.1709)					
Minority * Male		-0.1884 (0.3118)		-0.7487** (0.2950)		-0.0845 (0.2941)		0.0863 (0.2959)		-0.1366 (0.2994)					
cut1	-4.112	-4.071	-2.033	-1.879	-1.580	-1.561	-2.268	-2.286	-1.541	-1.513					
cut2	-2.223	-2.183	-0.145	0.014	-0.424	-0.406	-1.049	-1.068	-0.048	-0.020					
cut3	-0.660	-0.619	1.449	1.620	0.835	0.854	0.470	0.452	1.362	1.392					
cut4	0.927	0.969	3.147	3.326	2.601	2.620	2.402	2.384	3.060	3.089					
N	768	768	768	768	768	768	768	768	768	768					
Likelihood Ratio-test	61.3	61.7	40.4	46.9	49.4	49.5	48.5	48.6	72.4	72.6					
[d.f]	[20]	[21]	[20]	[21]	[20]	[21]	[20]	[21]	[20]	[21]					
(p-value)	(0.000)	(0.000)	(0.004)	(0.001)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)					
R ²	0.033	0.034	0.018	0.021	0.021	0.021	0.022	0.022	0.032	0.032					

Table 23 continued

	Parents			Other Relatives			Citizen's Advice Bureau			University Support Services			University Degree Courses					
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10	Model 11	Model 12	Model 13	Model 14	Model 15	Model 16	Model 17	Model 18
AIC	1825.7	1827.4	2219.4	2214.9	2361.8	2363.7	2224.1	2226.0	2240.9	2242.7								
SIC	1937.2	1943.5	2330.8	2331.0	2473.3	2479.8	2335.5	2342.1	2352.4	2358.8								
	<div style="display: flex; justify-content: space-between;"> Internet and Social Media Library and Books Short Courses Bank Manager </div>																	
Minority Group	0.4016** (0.1588)	0.5124** (0.2431)	0.8740*** (0.1623)	0.8414*** (0.2479)	0.5152*** (0.1606)	0.5674** (0.2484)												
Male	0.0958 (0.1393)	0.1547 (0.1703)	0.1580 (0.1394)	0.1417 (0.1680)	-0.1012 (0.1409)	-0.0747 (0.1707)												
Minority * Male		-0.1740 (0.2892)		0.0513 (0.2949)														
cut1	-1.393	-1.354	-0.786	-0.798	-1.839	-1.820												
cut2	0.173	0.213	0.631	0.620	-0.770	-0.751												
cut3	1.434	1.475	1.995	1.984	0.777	0.796												
cut4	3.141	3.183	3.773	3.762	2.612	2.631												
N	768	768	768	768	768	768	768	768	768	768	768	768	768	768	768	768	768	768
Likelihood Ratio-test	49.7	50.0	66.3	66.3	40.3	40.4												
[d.f]	[20]	[21]	[20]	[21]	[20]	[21]												
(p value)	(0.000)	(0.000)	(0.000)	(0.000)	(0.005)	(0.007)												
R ²	0.022	0.022	0.029	0.029	0.018	0.018												
AIC	2313.8	2315.5	2310.4	2312.3	2264.6	2266.5												
SIC	2425.3	2431.6	2421.8	2428.4	2376.0	2382.6												

Standard errors from negative Hessian in parentheses; indicate statistically significant at the *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$ levels; controls for year of study, university, home region, parental employment, parental education, prior financial and work experience, and sources of advice valued included

Table 24 Ordered logit regression of extent individual sources of advice are valued with gender and minority group membership interactions (Odds Ratios)

	Parents			Other Relatives			Citizen's Advice Bureau			University Support Services			University Degree Courses		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10					
Minority Group	0.9995 (0.1664)	1.1310 (0.2986)	1.5608*** (0.2491)	2.5141*** (0.6208)	1.3767** (0.2164)	1.4547 (0.3610)	1.6405*** (0.2644)	1.5510* (0.3893)	1.9477*** (0.3133)	2.1279*** (0.5363)					
Male	0.6662*** (0.0989)	0.7083* (0.1272)	0.8588 (0.1207)	1.0983 (0.1876)	0.8192 (0.1148)	0.8415 (0.1419)	0.8739 (0.1240)	0.8495 (0.1460)	1.5430*** (0.2198)	1.6109*** (0.2752)					
Minority * Male		0.8283 (0.2583)		0.4730** (0.1395)		0.9190 (0.2702)		1.0901 (0.3225)		0.8723 (0.2612)					
cut1	-4.112	-4.071	-2.033	-1.879	-1.580	-1.561	-2.268	-2.286	-1.541	-1.513					
cut2	-2.223	-2.183	-0.145	0.014	-0.424	-0.406	-1.049	-1.068	-0.048	-0.020					
cut3	-0.660	-0.619	1.449	1.620	0.835	0.854	0.470	0.452	1.362	1.392					
cut4	0.927	0.969	3.147	3.326	2.601	2.620	2.402	2.384	3.060	3.089					
N	768	768	768	768	768	768	768	768	768	768					
Likelihood Ratio-test	61.3	61.7	40.4	46.9	49.4	49.5	48.5	48.6	72.4	72.6					
[d.f]	[20]	[21]	[20]	[21]	[20]	[21]	[20]	[21]	[20]	[21]					
(p value)	(0.000)	(0.000)	(0.004)	(0.001)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)					
R ²	0.033	0.034	0.018	0.021	0.021	0.021	0.022	0.022	0.032	0.032					

Table 24 continued

	Parents		Other Relatives		Citizen's Advice Bureau		University Support Services		University Degree Courses			
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10		
AIC	1825.7	1827.4	2219.4	2214.9	2361.8	2363.7	2224.1	2226.0	2240.9	2242.7		
SIC	1937.2	1943.5	2330.8	2331.0	2473.3	2479.8	2335.5	2342.1	2352.4	2358.8		
	Internet and Social Media				Library and Books				Short Courses			
	Model 11	Model 12	Model 13	Model 14	Model 15	Model 16	Model 17	Model 18	Model 19	Model 20		
Minority Group	1.4942** (0.2373)	1.6693** (0.4059)	2.3965** (0.3890)	2.3196** (0.5749)	1.6740** (0.2689)	1.7637** (0.4381)	1.0356 (0.1679)	0.8393 (0.2086)	1.0356 (0.1679)	0.8393 (0.2086)		
Male	1.1005 (0.1533)	1.1673 (0.1988)	1.1712 (0.1632)	1.1522 (0.1936)	0.9037 (0.1274)	0.9280 (0.1584)	0.8377 (0.1198)	0.7483* (0.1314)	0.8377 (0.1198)	0.7483* (0.1314)		
Minority * Male	0.8403 (0.2430)	0.8403 (0.2430)	0.8403 (0.2430)	0.8403 (0.2430)	0.8403 (0.2430)	0.8403 (0.2430)	0.8403 (0.2430)	0.8403 (0.2430)	0.8403 (0.2430)	0.8403 (0.2430)		
cut1	-1.393	-1.354	-0.786	-0.798	-1.839	-1.820	-3.211	-3.286	-3.211	-3.286		
cut2	0.173	0.213	0.631	0.620	-0.770	-0.751	-2.318	-2.393	-2.318	-2.393		
cut3	1.434	1.475	1.995	1.984	0.777	0.796	-1.174	-1.248	-1.174	-1.248		
cut4	3.141	3.183	3.773	3.762	2.612	2.631	0.359	0.286	0.359	0.286		
N	768	768	768	768	768	768	768	768	768	768		
Likelihood Ratio-test	49.7	50.0	66.3	66.3	40.3	40.4	26.9	28.1	26.9	28.1		
[d.f]	[20]	[21]	[20]	[21]	[20]	[21]	[20]	[21]	[20]	[21]		
(p value)	(0.000)	(0.000)	(0.000)	(0.000)	(0.005)	(0.007)	(0.138)	(0.136)	(0.138)	(0.136)		
R ²	0.022	0.022	0.029	0.029	0.018	0.018	0.013	0.013	0.013	0.013		
AIC	2313.8	2315.5	2310.4	2312.3	2264.6	2266.5	2114.7	2115.5	2114.7	2115.5		
SIC	2425.3	2431.6	2421.8	2428.4	2376.0	2382.6	2226.2	2231.6	2226.2	2231.6		

Standard errors from negative Hessian in parentheses; indicate statistically significant at the *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$ levels; controls for year of study, university, home region, parental employment, parental education, prior financial and work experience, and sources of advice valued included

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