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A-LEVEL SUBJECT CHOICE, SYSTEMATIC BIAS AND UNIVERSITY PERFORMANCE IN THE UK: THE CASE OF ACCOUNTING

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Abstract

British students from lower socio-economic backgrounds are more likely to attend non-selective State schools and are therefore more likely to take a wider variety of A-level subjects including applied disciplines such as Accounting. This is attributed to the performative pressure subjected by school league tables that incentivise schools to encourage students to select subjects that will yield the highest grades. However, many leading Universities have restricted the chances of applicants holding particular combinations of A-level subjects that, in some cases, include Accounting. Interviews held within a large English University reveals that few students are aware of such restrictions, whilst corresponding quantitative data indicates that students who enter University with two or more restricted A-level subjects perform no differently on average than other students. Those entering University with an Accounting A-level, however, perform, better in their first year but exhibit lower degree performance, on average, by the end of their studies.

Keywords: Accounting education, A-level subject choice, social mobility, Accounting academic performance.

1. Introduction & Motivation

There is considerable variation in the configuration of choice and specialisation in pre-University education across OECD countries (Davies et al., 2009). Within business and accounting education, the impact of pre-entry subject qualifications on University performance has been a key concern of researchers (see for example, Baldwin & Howe, 1982; Bergin, 1983; Schroeder, 1986; Keef, 1992; Loveday, 1993; Sangster & McCombie, 1993; Rohde & Kavanagh, 1996). As accounting based courses are increasingly taken by students before they enter University, year one introductory accounting modules typically include students with diverse levels of prior knowledge that, in turn, lead to debate about the most effective admissions policies, course design and assessment strategies.

In the British post compulsory education system, students typically select three or four specific subjects to study (in preparation for Advanced or 'A-level' examinations) prior to attending University.[1] Many leading academic institutions in the England now have placed restrictions on accepting students with combinations of particular A-level subjects (Grimston & Waite, 2008; Fazackerley & Chant, 2008; BBC, 2008). For example, in 2008, the University of Cambridge recommended that all applicants do not study more than one of what it describes as, 'other A level subjects', which include Accounting and Business Studies (University of Cambridge, 2009; Fee et al. 2010). Their Admissions Office explain that these A levels are, "either rather specialised in focus and therefore not a good choice if you are looking to keep your options open, or the way in which they are taught and assessed means that they do not provide a good preparation for the courses that the University of Cambridge offers" (University of Cambridge, 2009).

Furthermore, some leading institutions advise against taking combinations including Accounting and Business Studies even for those applying for related degree courses. For example, at the London School of Economics & Political Science (LSE) (2009) applicants are advised against studying two of a set of subjects that include Accounting, Business Studies and Law at A-level if applying for a BSc Accounting & Finance degree.

This issue has provoked controversy in the UK and it has been asserted that unofficial lists of 'non-preferred' A-level subject combinations may have prevented some comprehensive

[1] See Fee et al. (2010) for an overview of post compulsory education in the UK.

State (i.e. non-selective) school pupils from being enrolled at top Universities (Fazackerley & Chant, 2008; Grimston & Waite, 2008) despite UK government policy encouraging institutions to seek a more socially diverse student population. (Duff, 2004). The list of 'non-preferred' subjects is said to include A-levels that are predominantly offered by comprehensive State schools rather than by independent private (i.e. selective) schools (for example, see Fazackerley & Chant, 2008; Shepherd, 2010). It is asserted that 'softer' A-levels are more readily available in comprehensive State schools as they are perceived to offer a means to boost overall student grades and improve school performance in published league tables (Grimston & Waite, 2008). A-levels including Accounting, Business Studies and Law are described as 'soft' subjects because they are vocational or have a practical bias (Russell Group, 2011).

Teachers are found to face pressure from schools to maintain grades because of their use in league table performance measures (Higton et al., 2012). It has been argued that school students classified as belonging to more economically deprived backgrounds are more likely to be encouraged to take vocational rather than academic A-levels (Fazackerley & Chant, 2008; Sutton Trust, 2009). The emphasis on State school performativity may incentivise schools to guide pupils to 'softer' subjects where they perceive the pupils may get a relatively higher grade than a 'harder' subject such as Maths or Physics. For example, 74.6% of all A-levels are taken by students from comprehensive State schools but they account for 96.1% of students selecting an A-level in Law (Fazackerley & Chant, 2008). Consequently, students from State schools are argued to be disadvantaged in gaining entry to top Universities as they are more likely to be advised to select vocational or 'softer' A-level subjects that are implicitly or explicitly restricted by leading academic institutions (Fazackerley & Chant, 2008; Shepherd, 2010). Within accounting education, McPhail et al. (2010) observe that trends in Scottish school subject choices vary across different schools and note that "schools with the least deprivation were more mindful of university entrance considerations" (McPhail et al., 2010:43; see also Fazackerley & Chant, 2008).

Commentators assert that the designation of 'non-preferred' A-level subject combinations may discriminate against State comprehensive school pupils and maintain the over-proportionate representation of independent private school pupils in the most prestigious Universities (for example, see Kirkup et al., 2010 Shepherd, 2010). For example, approximately 7.2% of English pupils attend private independent schools but they represent 46.6% of the intake at the University of Oxford (Shepherd, 2011).

This paper therefore considers whether there is a capacity for pre-University subject choices to fashion student's educational trajectories (Davies et al., 2008). In the UK, it is asserted that social mobility has slowed down since the 1970's and is generally lower than other developed economies (The Panel on Fair Access to the Professions, 2009). Prior studies that control for relative exam performance have found that students from lower socio-economic contexts are less likely to attend prestigious UK universities (for example, see Mangan et al., 2010). The Panel on Fair Access to the Professions notes that between 1958 and 1970, the biggest decline in social mobility occurred in Journalism and Accountancy through, for example, the requirement to hold a University degree (The Panel on Fair Access to the Professions, 2009). Although only 7% of the UK population attend independent selective schools, 70% of finance directors had done so (The Panel on Fair Access to the Professions, 2009).

Governments have been criticised for allowing students to take 'softer' A-level subjects (Shepherd, 2011) although Wilson (2011) notes that very few UK universities had openly warned students about which A-level subjects should be avoided.[2] Fazackerley & Chant (2008: 3) highlight that, "it seems particularly unfair to expect pupils or parents to instinctively know that Law, Accounting and Business Studies may be considered 'soft' or less desirable by many top universities". The National Council for Educational Excellence (2008) recommended that the UK Government should encourage schools to provide better information, advice and guidance for students in order for them to make better A-level choices to enable them to gain entry onto the most selective courses offered by Universities. As a response to the criticism, the UK Russell Group[3] did issue guidance on preferred A-levels in 2011 (BBC, 2008; Shepherd, 2011). The guide, 'Informed Choices' appeared to somewhat contradict the earlier guidance provided by individual Russell Group Universities and has been criticised for its opacity (see Tobin, 2011). For example, it states that degrees such as Accountancy and Business Studies will normally be open to all applicants regardless of specific subject background (Russell Group, 2011). Business Studies and Economics A-levels are recommended as useful for those applying for Accounting or Business Studies degree programmes. However, students that don't take recommended 'facilitating' subjects such as Maths, English, sciences and languages are asked whether they are "trying to avoid a challenge" (Russell Group, 2011: 24) – none of Accounting, Business Studies, Law or Economics are designated as facilitating subjects.

[2] Although the University of Cambridge and the LSE are transparent exceptions.
[3] The Russell Group claims to represent 24 of the largest Universities in the UK (see http://www.russellgroup.ac.uk/home/)..

In respect of Accounting and Business Studies, individual Universities pursue opposing entry policies for accounting related degrees. Whilst the LSE list Accounting and Business Studies as non-preferred subjects, the University of Manchester specifically require applicants to be studying at least one of a list of specified subjects that includes Accounting and Business Studies (University of Manchester, 2011). Other Russell Group Universities publish lists of non-preferred A-levels that should only be taken in combination with 2 or more preferred A-levels. For example, the University of Sheffield (2011) designates Accounting and Business Studies as 'acceptable' A-levels whereas Applied Business is only acceptable in combination with two or more 'acceptable' A-levels (see also University of Birmingham, 2009).

Although perceived unfavourably by some leading universities, such 'softer' A-level subjects were found to be commonly taken by students accepted on Accounting & Finance undergraduate degree programmes elsewhere in the UK (see Tobin, 2011). For example, at the University of Ulster, Business Studies, Media Studies and Design & Technology were amongst the three most popular A-level examinations held by entrants onto their BSc Accounting & Finance degree programme (Fee et al., 2010).

Intuitively, it may seem odd to infer that prior study of a subject provides an inferior preparation for the study of the same subject at University. Yet, Accounting, Business Studies and Law are included on some lists of non-preferred A-levels for related undergraduate programmes. In respect of the Law A-level as preparation for a law degree, Fazackerley & Chant (2008: 8) quote an University admissions head as explaining that, they "want a blank canvas. A little knowledge can be a dangerous thing". University subject preferences are argued to be based on whether the subject encourages independent thought, the level of academic and practical content, the extent of internal and external examinations and the amount of groupwork (Fazackerley & Chant, 2008). In the UK education system, research has highlighted general differences between A-level assessment and University assessment. For example, A-level papers tended to be shorter and more structured, students were perceived to receive greater assistance and guidance from their tutors, and received more resit opportunities. However, no differences are specifically attributed to A-level courses in Accounting or Business Studies (Fee et al., 2010). A large scale analysis of relative A-level subject difficulty using different statistical methods did find that, on average, Maths and Natural Sciences were more difficult than subjects such as Law (ranked 21st out of 33) and Business Studies (ranked 25th) (Coe et al., 2008).

However, elsewhere in the world, institutions actively privilege the study of subjects that are most relevant to the chosen degree. For example, in the US, colleges base admission decisions on the most relevant components of the SATS score (Kirkup et al. 2010). In Scotland (whose regionally devolved government sets an education policy independently of the remainder of the UK), the study of Accounting prior to University does not appear to be considered to provide insufficient preparation for study nor provide a barrier to University participation. For example, McPhail et al. (2010) found that 49% of all Scottish University students commencing an accounting degree had passed the Scottish Higher examination in Accounting. Across the UK, Fazackerley & Chant (2008) find that 'soft professional' A-levels (Accounting, Law and Business Studies) represent 4.3% of all accepted A-levels by 27 sampled 'research intensive universities' in 2007/8[4]. Despite representing 6.4% of all A-levels taken by 16-18 year olds, Accounting, Law and Business Studies represented 0.7% of all A-levels accepted by the University of Oxford (Fazackerley & Chant, 2008).

This study is therefore motivated to explore the association between University academic performance and the possession of a relevant pre-University qualification such as an Accounting A-level. The paper considers whether an Accounting A-level provides an inadequate preparation for an accounting undergraduate degree, or whether it is associated with superior academic performance both across the programme and within core accounting modules. The paper also considers whether students possessing 'non-preferred' A-level subjects perform worse than those students with 'acceptable' A-level subjects during their University undergraduate programme. In doing so, the paper aims to develop two contributions to the education literature: firstly, to inform debate in the UK setting on whether, and in what context, 'professional, vocational' A-levels such as Accounting may be considered as 'soft', and whether pre-University subject choices may act as a means of implicit social discrimination; and secondly, to provide evidence on the impact of relevant pre-qualification subject experience on student performance at tertiary level to inform admissions policies and pedagogical approaches. The setting for this study is a large English Russell Group university that does not identify accounting as a non-preferred subject, but that does restrict other subject combinations. It therefore allows the investigation of student awareness and perceptions of 'non-preferred' subjects, and the relative

[4] Assuming that students take 4 A-levels, one can extrapolate that 17% of UK University students hold an A-level in accounting, law or business studies.

performance by students who hold both 'preferred' and 'non-preferred' A-levels. Interviews with accounting undergraduate students are also used to explore how and why students choose their A-level subjects, whether they are aware of non-preferred subject combinations and whether subject choices are associated with particular schools.

This remainder of the paper is organised as follows. Section 2 reviews prior literature examining the association between pre-university accounting study and university performance from around the world. Section 3 describes the methods used to measure the association between A-levels subjects and university performance. An analysis of the results and discussion of their implications occupy the latter two sections.

2. Literature Review

Research investigating the relationship between prior accounting study and university performance aims to further our understanding of the expectations placed on undergraduates. Davies et al. (2009) suggest three rationales for A-level subject choices. Firstly, students might have a relative advantage in a particular subject arising from the configuration of their processing abilities or 'frames of mind'. Secondly, students develop a 'self-concept' through comparing their achievements with that of their peers, leading to an inference that they are good at one subject because they perform relatively better than others. Finally, choices may be driven by those subjects that are more congruent with their interests, ambitions and aspirations.

In a large scale study of GCSE[5] student subject choices, Davies et al. (2008) found that socioeconomic background did influence subject choice, although choices were predominantly driven by general ability. For example, students whose parents had professional/managerial careers were significantly less likely to select Business Studies at GCSE level. Furthermore, Business Studies was reported to be marginally easier than other 'academic' GCSE subjects such as French or History. In examining subject choices at A-level, Davies et al. (2009) found that socio-economic background continued to be coupled with the selection of Business Studies by being associated with those students whose parents did not hold a degree. In general, they find that prior subject, rather than general, performance (at GCSE level) is the strongest predictor of subject selection consistent with the 'relative advantage' and 'self concept' rationales (Davies et al., 2009). However, this relation did not apply to one of 13 subjects under investigation,

[5] General Certificate of Secondary Education exams that are normally taken prior to A-levels at age 16.

Business Studies, because students were less likely to have studied it before. This suggests that students selecting A-level subjects such as Business Studies or Accounting are less likely to be motivated by their actual (or perceived) relative subject advantage because they unlikely to have prior experience of the subject.

The benefits of studying accounting prior to University have tended to divide academic opinion (see Sangster & McCombie, 1993; Rankin et al., 2003; Bryne & Willis, 2009) but the issue brings forth several implications for accounting education: how should recruitment policies approach prior accounting study? (see Doran et al., 1991); do those with prior accounting experience need to be challenged more meaningfully by undergraduate accounting education?; and do those students without prior experience feel disadvantaged because performance evaluation standards are biased by the high performance of students who are reviewing content they have covered before? (see Schroeder, 1986).

As Baldwin & Howe (1982) observe, although students with pre-University experience of accounting education may approach their first University accounting module with great confidence, that confidence is not always supported by their performance. Intuitively, they expect students with pre-University experience of accounting to perform better but a body of prior research examining the relationship between pre-University study of accounting and subsequent performance at University across a range of empirical settings is divided on the issue. For example, research based in Australia (Loveday, 1993; Rohde & Kavanagh, 1996; Rankin et al., 2003), HK (Gul & Fong 1993) Malaysia (Tho, 1994) and the US (Schroeder 1986; Eskew & Faley, 1988; Doran et al. 1991) finds that prior study of accounting is associated with relatively superior performance in accounting modules in the first year of University study.

A body of prior research elaborates on this relationship by suggesting that the advantage afforded by the prior study of accounting is found to present a transient advantage in accounting modules that dissipates after commencing University education (for example, see Baldwin & Howe 1982; Bergin, 1983; Schroeder, 1986; Doran et al., 1991). For example, Bartlett et al. (1993) find no significant association between possession of an Accounting A-level and performance in University accounting courses at an UK university but those students with an Accounting A-level had superior initial performance that was eroded after the first year of study. Baldwin & Howe (1982) conclude that students with pre-University accounting experience may be overconfident, being lulled into a false sense of security by an early assessment that replicates their school studies and then proceeding to fall behind in their studies in comparison to their

peers who are studying accounting for the first time. Sangster & McCombie (1993) also find that a majority of students with prior study experience of accounting over-estimated their level of understanding. Schroeder (1986) noted that the temporal benefit of prior accounting experience on financial accounting performance at a US University was dependent upon the depth, rather than the presence or absence, of prior accounting study. After performing relatively better on their first accounting course at a US University, Doran et al. (1991) found that those with prior accounting study performed worse in the second stage of their accounting studies. The temporal benefit afforded by prior accounting study may be linked to student learning style. Prior educational experiences are claimed to shape students' choice of learning styles or educational philosophies (see Duff 2004) and pre-University accounting study may be associated with students who adopt a surface learning approach that provides a poor understanding of accounting at University beyond the first level (see Byrne & Willis, 2009).

However, other studies based in Australia (Alcock et al., 2008) and Ireland (Byrne & Flood, 2008) find that pre-qualification accounting gave no significant advantage to students passing a University level introductory accounting module, although it was positively related to overall student performance.

Finally, other studies based in the UK (Guney, 2009) and NZ (Keef, 1992) find that pre-University accounting study was not significantly associated with performance in accounting modules.

In considering the relationship between pre-University study and University performance in other subjects, Green (2011) finds that A-level Business Studies is significantly and positively related to overall academic performance for business studies students at University.

Overall, therefore, there is no overriding evidence to suggest that pre-University accounting educational experience provides an inadequate preparation for university study of accounting. If anything, it appears to be associated with superior performance in the first year of studies but this advantage is swiftly eroded and there is little consistent evidence to suggest it provides a good preparation for later accounting studies. Prior knowledge appears to carry an advantage that is transitory and dissipates according to the relationships between the nature of accounting study at school and that undertaken at university (Loveday 1993).

In order to gain further understanding of the relationship between pre-University study and academic performance at University in the context of UK accounting education, the paper adopts a two stage empirical approach. Firstly, the paper presents the results of quantitative analysis investigating the association between A-level subjects and general and accounting-specific University performance. Secondly, the study conducts a series of interviews with students to explore why they selected pre-University A-level courses and how they perceived those courses prepared them for University study. As detailed in section 1, an Accounting A-level is designated as 'preferred' in some Universities and 'non-preferred' in others, although there is evidence that such designations do not appear to be uniformly known by University applicants. There is also some evidence that vocational subjects like Accounting are more likely to be chosen by students from lower socio-economic backgrounds. For example, subject choices may be influenced by student dispositions or habitus: they choose subjects that they believe 'people like them' should choose and can therefore potentially reproduce social positioning. Drawing on Bourdieu, educational researchers assert that educational and professional choices can be influenced by the differential level of resources ('cultural capital') that individuals exploit by drawing on their perceptions of social standing, certainty, entitlement and confidence (i.e. habitus) (for example, see Brooks, 2002; Jacobs, 2003; Davies et al., 2008). Furthermore, Ball et al. (2002) discuss how higher education choices are also influenced by 'institutional habitus' such as, for example, school expectations on where and what their students are expected to study in higher education. They find differences in the courses favoured between students in non-selective State schools, who favour social sciences and education, and selective private schools who favour the humanities, medicine and pure sciences. This is supported by Oliver & Kettley (2010) who describe how teachers can play a key role in supporting or challenging student habitus and maintaining school practices that can inhibit certain possibilities through, for example, the advice or encouragement provided to students or the curriculum on offer. For example, they report that in one school, "high achievers were guided towards a curriculum compatible with progression to elite universities" (Oliver & Kettley, 2010: 742). Socioeconomic background can also provide students with advantages and disadvantages in particular subject areas such as a propensity for a foreign language due to regular travel opportunities or a foreign second home. It is likely that students will also be influenced by the perceived difficulty of a subject when making subject choices (Davies et al., 2008). Given the evidence, this study seeks to understand whether, in the UK, School and University policy may together act as a systematic

bias against students from lower socioeconomic backgrounds (Davies et al., 2008). The next section details the empirical approach.

3. Research Methods

The first stage of empirical testing sought to explore the quantitative relationship between pre-University A-level subjects and University performance. The sample consisted of all students who were accepted onto an accounting-based degree at a large, English Russell Group University with 3 or more A-levels between 2003-2008 and graduated between 2006-2011. The University accepted Accounting and Business Studies A-levels during this period, but published a list of non-preferred subjects that included Applied Business.[6] Of 430 students for which annual University student records were available, 349 entered the degree programme having achieved 3 or more A-levels. Of the sample, 19% of students came from outside the EU, and approximately 15% entered the programme through a 'widening participation' scheme.

As a multivariate statistical test, the paper uses an OLS regression model to examine the association between 'non-preferred' A-level subjects and University performance across the degree programme. In constructing the regression models, overall University academic performance is measured by the overall degree percentage (PERF3), year 2 percentage (PERF2) and year 1 percentage (PERF1). University academic performance in accounting modules is measured by average mark on the first sit in the core final year financial accounting (ACCPERF3) and the first year core accounting module (ACCPERF1).

The explanatory variables measured in the regression models were firstly, the presence of an Accounting (ACCALEVEL) or Business Studies A-level (BUSALEVEL), and secondly, those students who met their UCAS offers with two or more of the A-levels (NONPREFDUM) designated as 'non-preferred' for entry onto the BSc Accounting & Finance degree programme at LSE in 2009 (LSE, 2009) (see Table 1).

Table 1 'Non-preferred' A levels at LSE (2009)

Accounting
Art and Design

[6] The complete list of non-preferred subject combinations was Applied Art and Design, Applied Business, Applied ICT, Applied Leisure Studies, Applied Science, Applied Travel & Tourism, Art & Design, Art & Design, Dance, Design & Technology, Engineering, Health & Social Care, Home Economics, Leisure Studies, Media, Moving Image Arts, Performing Arts, Performance Studies and Travel & Tourism.

Business Studies
Communication Studies
Design and Technology
Drama/Theatre Studies
Home Economics
Information and Communication Technology
Law
Media Studies
Music Technology
Sports Studies
Travel and Tourism

Control variables were identified from the large body of accounting education research investigating the determinants of academic performance, and were included in the regression models in order to reduce the random error component.

Prior general academic performance, as a measure of learning ability and motivation, has been found to be strongly associated with University performance (for example, see Eskey & Faley 1988; Doran et al., 1991; Duff, 2004; Byrne & Flood, 2008; Surridge, 2008; Green, 2011). Kirkup et al. (2010) assess a range of pre-University attainment measures and conclude that average A-level score is the best predictor of University participation and degree classification. To capture pre-University academic performance, the regression models use the tariff point score based on the three highest-graded A-levels accepted by the University (TARIFFP).[7] To capture prior general academic performance after entering University, the regression models for final year performance incorporate averages from prior University performance.

In general, prior research finds that pre-University numeracy is positively associated with undergraduate academic performance in accounting modules (for example, see Eskey & Faley, 1988; Gul & Fong, 1993; Tho, 1994; Alcock et al., 2008) although this is not consistent across all studies (Bartlett et al., 1993). To capture pre-University numeracy, the regression models include a dummy variable highlighting students who held an A-level in Mathematics (MATHSADUM).

To control for changes in the learning environment and to assess the relationship between A-level subjects and undergraduate academic performance across time, the models introduce a control variable signifying the student's year of entry into the University

[7] The 'tariff point' score is commonly used as device for quantifying A-level grades for University admission in the UK (A=120 points, B=100 points, C=80 points, D=60 points, E=40 points). In line with the majority of University admission requirements, non-subject specialist A-levels are excluded e.g. General Studies.

(ENTRYYEAR). The stability of the learning environment benefitted from the singular institution setting and the presence of the same module leaders of the year 1 and final year financial accounting module over the sample period.

The regression models investigate overall University performance and performance in a core financial accounting module both at the end of the programme, and at the end of year 1.[8] Each model takes the form $Y_i = \alpha + \beta_{ki}X_{ki} + \varepsilon_i$, where Y represents different measures of University performance, α represents the intercept, β represents the coefficients of 'k' independent variables (X) detailed above, and ε represents the error term. The dependent variables and independent variables for each model are specified below:

1. Y(PERF3) = α + βX(TARIFFP, MATHSADUM, ENTRYYEAR, PERF1, ACCALEVEL, BUSALEVEL) + ε
2. Y(PERF3) = α + βX(TARIFFP, MATHSADUM, ENTRYYEAR, PERF1, NONPREFDUM) + ε
3. Y(PERF1) = α + βX(TARIFFP, MATHSADUM, ENTRYYEAR, ACCALEVEL, BUSALEVEL) + ε
4. Y(PERF1) = α + βX(TARIFFP, MATHSADUM, ENTRYYEAR, NONPREFDUM) + ε
5. Y(ACCPERF3) = α + βX(TARIFFP, MATHSADUM, ENTRYYEAR, ACCALEVEL, BUSALEVEL, PERF2) + ε
6. Y(ACCPERF3) = α + βX(TARIFFP, MATHSADUM, ENTRYYEAR, NONPREFDUM, PERF2) + ε
7. Y(ACCPERF1) = α + βX(TARIFFP, MATHSADUM, ENTRYYEAR, ACCALEVEL, BUSALEVEL) + ε
8. Y(ACCPERF1) = α + βX(TARIFFP, MATHSADUM, ENTRYYEAR, NONPREFDUM) + ε

The first and second models focus on overall University performance and seek to understand the association with those students holding Accounting and Business Studies A-levels (model 1) or those who met their University UCAS offer with two or more 'non-preferred' A-levels. The third and fourth models focus on year 1 performance at University and investigate

[8] For the models investigating final year degree performance (model 1 and 2), only year 1 average is used to represent prior University performance because 25% of the year 2 average forms part of the overall average. For the models investigating final year accounting performance (model 5 and 6), only year 2 is used to represent prior University performance because it is strongly correlated with performance in year 1.

the association with Accounting and Business Studies A-levels (model 3) or those applicants holding two or more 'non-preferred' A-levels (model 4). The fifth and sixth models use University performance in the core final year financial accounting module as the independent variable, and examine the association with Accounting and Business Studies A-levels (model 5) or those applicants holding two or more 'non-preferred' A-levels (model 6). Models 7 and 8 focus on University performance in the first year core financial accounting module and the respective association with Accounting and Business Studies A-levels, and those who met their UCAS offer with two or more 'non-preferred' A-levels.

In the second stage of the empirical testing, the study sought to understand the choices of pre-University A-levels made by undergraduate students studying accounting at University. Semi-structured interviews were conducted with 12 undergraduate students enrolled on an accounting-based degree at a large, English Russell Group University[9] where they were asked to detail their pre-university qualifications, grades and school history before being engaged in a discussion based on what influenced their subject choices and how they perceived the relationship between those courses and their University education. Seven of the interviewees attended State comprehensive schools, two attended a State grammar school and three attended a private selective ('public') school. Accounting and Business Studies were offered in some comprehensive (non-selective State) schools but not others, although Accounting was not available at the UK State grammar and private selective schools in the sample.

The next section of the paper firstly details the results of the quantitative tests to understand the relationship between 'non-preferred' A-levels such as Accounting and Business Studies and student performance at University whilst section 4.2 summarises the interview findings.

4. Results & Analysis

4.1 Quantitative Testing

The descriptive statistics displayed in Table 2 reveal that 20% of students in the sample met their UCAS offer with two or more A-levels designated as 'non-preferred' in Table 1. Of

[9] Ethical approval was granted by the University, and ethical consent forms were signed by all interviewees prior to participation.

those, 17.7% held two 'non-preferred' A-levels whilst 2.3% held three 'non-preferred' A-levels. Within the sample, 25.1% had gained an A-level in Accounting and 34.4% had gained an A-level in Business Studies. As a measure of numeracy ability, 56.5% held an A-level in Mathematics.

Table 2: Descriptive Statistics

Variable	Variable Code	N	Min.	Max.	Mean	Std. Dev.
Possession of 2 or more 'non-preferred' A-levels	NONPREFDUM	430	.00	1.00	.200	.400
Accounting A-level	ACCALEVEL	430	.00	1.00	.2512	.434
Business Studies A-level	BUSALEVEL	430	.00	1.00	.3442	.476
Pre-University numeracy	MATHSADUM	430	.00	1.00	.5651	.496
Pre-University academic performance	TARIFFP	349	200	520	326.59	45.827
Overall degree average	PERF3	427	15.94	80.90	59.945	7.087
Year 2 average	PERF2	427	34.22	80.25	57.967	7.168
Year 1 average	PERF1	429	20.17	79.92	56.981	8.604
Year 1 accounting	ACCPERF1	428	18.00	86.00	56.411	11.967
Year 3 accounting	ACCPERF3	430	.00	88.00	59.109	10.960

Results from the regression models are displayed in Table 3. The first row displays which measure of University performance is used in each model as the dependent variable (Y). Subsequent rows show information on the coefficient of each independent variable (X). The first figure shows the coefficient itself and the second figure in round brackets displays the T-test statistic of the hypothesis that the coefficient is zero. Coefficients that are significantly different from zero at the 1% (**) and 5% level (*) are indicated. The third figure in square brackets displays the standardised coefficient which demonstrates what percentage the independent variable (if significantly different from zero) contributes to the association with the dependent variable. The bottom two rows show the adjusted R^2 statistic that indicates the overall goodness of fit of the regression model, and the F-statistic, that tests the hypothesis that all the coefficients of independent variables are zero (this is rejected in all models at the 1% level).[10]

[10] No 'high' bivariate correlations (interpreted as >0.4) are found between explanatory variables that can indicate the presence of multicollinearity which can distort the estimation of regression coefficients. The calculation of Variance Inflation Factors ranging between 1.016 and 1.139 (all significantly below a threshold of 5) also indicate that the results are not distorted by multicollinearity.

Table 3: Coefficients of the Regression Models

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Dependent Variable	PERF3	PERF3	PERF1	PERF1	ACCPERF3	ACCPERF3	ACCPERF1	ACCPERF1
TARIFFP	.012 (1.583) [.07]	.010 (1.402) [.07]	.049 (5.042)** [.27]	.052 (5.401)** [.28]	.006 (.605) [.03]	.007 (.674) [.03]	.051 (4.046)** [.20]	.064 (4.794)** [.25]
MATHSDUM	-.355 (-.497) [-.02]	-.146 (-.200) [-.01]	.290 (.296) [.02]	.063 (.063) [.00]	-.374 (-.375) [-.02]	-.471 (-.465) [-.02]	1.484 (1.156) [.06]	1.412 (1.020) [.06]
ENTRY YEAR	.327 (1.678) [.08]	.339 (1.724) [.08]	.193 (.725) [.04]	.158 (.588) [.03]	.234 (.860) [.04]	.257 (.938) [.04]	.225 (.643) [.03]	-.061 (-.164) [-.01]
PERF1	.476 (12.084)** [.61]	.465 (11.875)** [.55]						
ACCALEVEL	-1.407 (-1.976)* [-.09]		2.476 (2.561)* [.14]		-.215 (-.218) [-.01]		10.420 (8.238)** [.40]	
BUSALEVEL	-.052 (-.079) [-.00]		-.004 (-.005) [.00]		.875 (.947) [.04]		.539 (.454) [.02]	
NONPREFDUM		-0.147 (-0.187) [0.85]		0.725 (0.668) [0.04]		0.161 (0.146) [0.01]		6.771 (4.512)** [.24]
PERF2					0.998 (15.293)** [0.65]	0.997 (15.259)** [0.65]		
Adjusted R^2	0.328	0.322	0.085	0.071	0.424	0.424	0.209	0.107
F Statistic	29.08**	33.835**	7.424**	7.640**	43.399**	51.905**	19.303**	11.378**

* Significant at the 0.05 level
** Significant at the 0.01 level
( ) Represent T-statistics
[ ] Represent standardised coefficients

Model 1 analyses whether the overall degree average obtained by students is associated with possession of A-levels in Accounting and/or Business Studies. The results indicate that there is a 95% probability that the possession of an Accounting A-level is negatively associated with overall average. Students holding an Accounting A-level are found to have, on average, slightly lower degree averages over the sample period. Overall degree performance is strongly

associated with prior performance (as measured by the first year average rather than pre-University tariff scores) which explains 61% of the association. At first glance, the negative and significant coefficient for the Accounting A-level (but not Business Studies A-level) lends some support to University admissions policies that designate Accounting as a 'non-preferred' subject even for Accounting based degrees. The second model looks at the impact of holding two or more of any of the 'non-preferred' A-levels rather than Accounting and Business Studies. Although the significance of first year performance remains dominant, the non-significance of NONPREFDUM suggests that it is the possession of an Accounting A-level rather than holding two or more of any non-preferred subjects that is mildly associated with weaker overall undergraduate performance.

Models 3 and 4 examine the association between A-level subjects and University performance in year 1. Table 3 indicates that there is a 95% probability that students holding an Accounting A-level have better average grades at the end of their first year. This suggests that those holding an Accounting A-level do gain an advantage at the start of their University studies but that this advantage is eroded over the course of their degree. University performance (in this case at the end of year 1) remains strongly associated with prior performance as measured by pre-University tariff points.

Models 5 and 6 analyse whether with possession of A-levels in Accounting and/or Business Studies is associated with performance on the final year core financial accounting module. However, no coefficients apart from prior performance (in the second year) are significantly different from zero.[11]

Models 7 and 8 examine the association between A-level subjects and performance in the year 1 financial accounting module. Model 7 demonstrates that that there is a strong probability that those holding Accounting A-levels perform significantly better. An Accounting A-level is more strongly associated (explaining 40% of the association) than prior performance as measured by tariff points. Model 8 substitutes Accounting and Business Studies with two or more of any of the 'non-preferred' A-levels (NONPREFDUM). Although NONPREFDUM is also significant and positive, this appears to be driven by the strong association with the Accounting non-preferred A-level as indicated in model 7.

[11] No significant differences were found in the results after substituting final year core management accounting performance for final year financial accounting performance.

In considering the control variables, consistent with prior research, academic ability is by far the strongest influent of University performance (see, for example, Byrne & Flood, 2008; Surridge, 2008; Green, 2011). For example, average A-level performance (as measured tariff points) is associated with first year University performance, and prior University performance is strongly associated with overall degree averages. Overall, the most immediate general prior academic performance appears to be the strongest predictor of current student performance. Unlike some prior work in accounting education (see, for example, Tho, 1994; Alcock et al., 2008) no relationship is found between the pre-University numeracy and University performance at any stage in the undergraduate degree although this may due to the inability of MATHSDUM to distinguish student performance where the majority of students held a Maths A-level.

In considering the quantitative test results together, the possession of an Accounting A-level provides a strong advantage in the year 1 accounting module, and therefore the overall year 1 average.[12] However, consistent with prior research (Baldwin & Howe 1982; Bergin, 1983; Schroeder, 1986; Bartlett et al. 1993), this advantage is temporary and appears to dissipate over time. By the end of their degree, students holding an Accounting A-level are likely to perform relatively worse than their peers indicating that the temporary advantage becomes a disadvantage as students reach the final stages of their undergraduate studies. This result, consistent with Doran et al. (1991), supports University admissions policies that designate Accounting as a non-preferred A-level even for admission onto Accounting based degrees. However, there is no support for the designation of Business Studies as a non-preferred A-level at the University under examination, nor for an admissions policy excluding admission to students offering two or more of the non-preferred A-levels listed in Table 1.

These findings bring forth two key implications. Firstly, does the Accounting A-level syllabus coverage, depth or pedagogic approach provide a poor preparation for undergraduate study of accounting? For example, are students encouraged to adopt surface learning styles or be introduced to accounting methods and techniques without fully understanding the reasoning behind them and being unable to later adjust their thinking to consider the different perspectives on the role of accounting and its associated disciplines within businesses and society? Students with Accounting A-levels perform better in the first year accounting module as they are likely to replicate material they have recently studied at A-level. However, as noted by Baldwin & Howe

[12] The year 1 financial accounting module contributes one sixth (20 of 120 credits) to the year 1 average.

(1982), this may lead to an overconfidence and inability to fully engage with material that goes beyond the A-level syllabus that is introduced in the second and final stage of their studies. The second implication is whether those students choosing an Accounting A-level are more likely to adopt a strategic or surface approach to learning, or whether an Accounting A-level is associated with other behavioural or socio-economic variables that may impair performance as they study accounting and its associated disciplines in greater depth in the final stages of their undergraduate degrees.

If these findings, that those taking Accounting A-levels are likely to perform worse than their peers, are replicated on other accounting related degrees, this may have implications for accounting education in the UK. Students from non-selective schools who are encouraged to take subjects that are considered 'non-preferred' to improve school league table performance, may be both disadvantaged from both gaining entry to leading UK institutions such as the LSE, and in their University performance in institutions that don't have subject restrictions, comparative to their peers with no non-preferred subjects. This, however, assumes that those students could have performed equally well on (preferred) subjects other than Accounting when applying to enter accounting related undergraduate degrees.

In order to further gauge the implications of the quantitative tests, the next subsection summarises the interview findings to understand student perceptions of non-preferred A-level subjects and knowledge of University admissions policies in order to assess the claims of social bias in the selection of non-preferred A-levels detailed in section 1.

4.2 Interviews

The first part of the interview analysis sought to explore the perceptions of 12 students on Accounting and other A-levels and their relationship with University performance. When asked whether an Accounting or Business Studies A-level provided good preparation for University study, no consensus emerged between the interviewees. Some perceived Accounting to be similar in terms of difficultly to most other A-levels, whilst others "wouldn't class Accounting next to Maths and Physics. Would put it in the middle." (Interview F). However, no interviewees classed Accounting as 'easy' although the Business Studies A-level was believed to be easy by some students due to its shallow coverage of other disciplines such as economics. In identifying the subjects that provided the best preparation for University study, many different

responses were given including languages, Sociology and Economics although Accounting and Maths were the most common responses.

Consistent with the quantitative testing, most believed an Accounting A-level did help particularly at the start of the accounting related degree programme, and those who didn't hold an Accounting A-level perceived that they were disadvantaged in the first year. However, several students hinted at the transitory nature of that advantage (as discussed in prior research) and the potential for those holding Accounting A-levels to be disadvantaged later in their studies (as found in the quantitative tests). For example, one interviewee indicated that overconfidence may be source of disadvantage in those holding an Accounting A-level. "I thought it was a massive advantage. Things that we did in [first year accounting module], 80% of that I'd done before. It wasn't the same format, kind of thing. A couple of my friends, they'd done Accounting A-levels as well. But like, because they thought that this is simple, I've already done it, they eased off. When it came to cash flows, they tried to do the cash flows they did at A-Level not what we did [at University] so they basically went 2 days before the exam, they looked at their notes and asked me why this wasn't working out and they didn't find out until then" (Interviewee D). Another interviewee noted that, "all my peers who had done Accountancy [A-level], they knew a lot of the basic things but at University it's a lot more broadly taught with reading so there was lot of things that they didn't cover which because I covered them at the foundation I had a really good grounding and standing compared to some of them who might have said, 'I know this so I can just, sort of, put it to the side' and I think the assessment criteria is a lot different for A-level compared to University" (Interviewee A). Several interviewees hinted that prior subject experience could lead to a sense of complacency. For example, those who studied a relevant A-level prior to University were perceived to, "definitely have a stepping-stone, an advantage, definitely. When I was taking those modules at University, I felt like I could sail through it. I recalled everything from A-level, I was able to add to it. When I was sitting in lectures and they mentioned certain things, I already felt like I knew it. I guess you could say there was a little sense of complacency because you don't, you felt like you already knew it and I didn't feel like I could be taught more." (Interview H).

The second part of the interview analysis sought to understand who and what influenced their choice of A-level subjects. In general, the interviewees chose A-levels on the basis of two broad factors: a) those who selected those subjects that they found enjoyable and interesting; and

b) those who chose subjects that they believed were relevant to their favoured careers or provided a good foundation for University courses. The majority of interviewees were also strongly influenced by siblings and family members in forming views on their A-level subjects. Even after prompting, none of the interviewees cited school careers advisors as influential. Although the majority were not advised against taking particular A-level subjects, there were some exceptions. For example, one interviewee noted, "they told me that I couldn't do Business Studies and Economics both at the same time because they were kind of linked" but the interviewee was allowed to select Accounting and Business Studies (Interview G). A selective grammar school student reported that, "we weren't advised against [particular subjects], they just didn't provide [particular subjects]. So, for example, Sociology was something that I was interested in, but my school didn't see it as... basically they didn't think it was a good A-level. It wasn't worth much, it wasn't as highly valued as other subjects so they just didn't provide it. The same with Law, I think they knew that Universities didn't really like students taking it so they just didn't provide it. Their choices were quite traditional – Maths, English Science – like really traditional subjects" (Interview H).

In selecting A-level subjects the interviewees were asked whether they knew that holding particular subjects such as Accounting or Business Studies was not advised by leading Universities. No-one was aware of explicit guidance designating A-levels as 'non-preferred', although some students were aware that certain subjects (such as Sociology and Media Studies) were discouraged and most knew that General Studies was not accepted. A student attending a selective grammar was aware that Law was not accepted by many Universities due to advice from teaching staff and tacit knowledge – "We didn't have much careers advice in our school so it wouldn't have been from them. But I think it might have been just teachers and, you know, like word of mouth. Somebody else knows and they tell somebody else. I think that's mainly where it was from. As I said earlier, maybe my school, they already knew that so by not providing it [non-preferred A-level] as an option, that was their way of sort of saying that, no, it shouldn't be taken at A-level." (Interview H). The only student who was aware that Accounting or Business Studies were discouraged attended a private selective school. Others appeared shocked and commented that studying 'relevant' subjects would be 'doing everything possible' to get on that degree course.

The interviews therefore support assertions that the restriction of particular A-level subjects is not generally known when A-levels were selected or when applying to University within the small group of interviewees (see Wilson, 2011). This may disadvantage students who could hypothetically perform equally well in a preferred or non-preferred A-level. Although official career advice may be available, students appeared to be most strongly influenced by family and informal social networks (see Ball & Vincent, 1998). Knowledge of University admissions procedures with respect to subject choices is argued to constitute part of an individual's cultural capital and may therefore act against those students who draw on family, social or school networks less familiar with admissions to more prestigious Universities (Ball et al., 2002).

Overall, the interviews do support the findings of the quantitative tests with respect to the relationship between those holding an Accounting A-level and the performance on an accounting related degree: that it provides a transitory advantage in year one accounting modules (and therefore year one averages) which is eroded and is associated with weaker performance as students are challenged with new material in the intermediate and final stages of their studies.

The next section presents the concluding comments where the paper synthesises the evidence on A-level subject selection, student awareness of A-level subject restrictions and the relative performance of students holding particular A-level subjects.

Concluding Comments

This paper considered whether there is a capacity for pre-University subject choices to fashion student's educational trajectories (Davies et al., 2008). In doing so, it explored the relationships within the British education system between A-level subject selection, student awareness of A-level subject restrictions and the relative performance of those students holding particular A-level subjects.

A body of evidence detailed in section 1 suggests that A-level subject choices are associated with a student's socio-economic background. This is because students from lower socio-economic backgrounds are more likely to attend non-selective State (comprehensive) schools. Evidence indicates that students at those schools are more likely to be exposed to and encouraged to take a wider variety of A-level subjects including more vocational or applied disciplines such as Accounting or Law. This is attributed to the performative pressure subjected

by publicly available school league tables that are used by parents to appraise relative performance and by educational authorities to identify schools that are 'failing'. As a key metric in the league tables is the grades of A-levels achieved rather than the subjects studied, schools are incentivised to encourage students to select A-level subjects that will yield the highest grades rather than those that may best prepare them for future undergraduate studies. In doing so, students may get better A-level grades taking newer 'non-preferred' subjects such as Accounting, Business Studies or Law, than if they had selected more traditional 'preferred' subjects such as, for example, Physics, English or Maths. As a result, schools would be able to report better league table performance and secure or improve resources.

However, many leading Universities have restricted the chances of those applicants holding particular combinations of A-level subjects. Although the lists differ across Universities, they generally designate applied, vocational, newer A-level subjects as 'non-preferred'. In some leading Universities, Accounting and Business Studies are designated as non-preferred. The qualitative data presented in this paper indicates that few students are aware of such restrictions, and are surprised by the type of A-levels designated as 'non-preferred'. The link between school performativity, as driven by a education policy emphasising comparative league performance on key metrics, and University admissions and performance, may act as form of systematic discrimination. By encouraging students to take non-preferred subjects, schools may be indirectly disadvantaging students from attaining access and/or performing well in leading English higher education institutions. This may perpetuate the disproportionate access to leading institutions by students from selective ('private' and 'grammar') schools and the opportunities in society that graduates from those institutions enjoy. If schools are encouraged to offer more diverse curricula, will potential systematic bias inherent in subject choices increase? (see Davies et al., 2008).[13]

The assertion of systematic bias, however, depends on whether those students would have achieved similar grades from taking a 'preferred' A-level. From the quantitative tests presented in this paper conducted on cohorts of students on an accounting related degree at a large English University, students that enter University with two or more A-level subjects designated as 'non-preferred' by a leading UK institution perform no worse on average at any stage of their degree than other students.

[13] The potential for systematic bias against students from lower socioeconomic backgrounds may be exacerbated by other claims that the current University admissions system in the UK provides an unfair advantage to students from selective schools (see UCAS, 2011).

However, those entering University with a 'non-preferred' Accounting A-level, perform better in first year of their studies due to the advantage they hold having studied accounting methods and techniques before. However, this advantage is transitory, is eroded during their studies, as documented in prior research, and those holding an Accounting A-level are found in general to have lower degree averages at their end of their programmes of study.

This therefore suggests that studying a subject in relatively less-depth at A-level may impair one's relative grades when subsequently studying the same subject in greater depth at University. Although this may appear counter-intuitive, the qualitative data suggest that those holding an Accounting A-level may perform relatively worse in the later stages of University study due to perhaps over-confidence or the adoption of a surface learning approach. The selection of an Accounting A-level by a student intending to study an accounting related degree at University is likely to be endogenous with other aspects of an individual's socio-educational context such as attendance, learning style, study effort, study approach, the perceived value of education, personality traits, career aspirations and work experience. Further research that can investigate and disentangle the relationship between socio-educational context, learning approach and the educational choices of an individual would therefore be potentially insightful. However, the research provides preliminary support to policy proposals that will require Universities, rather than the State, to play a greater role in the development of subject content and methods of assessment for A-level qualifications (Ofqual, 2012, Department of Education, 2012).

In the international domain, pre-university accounting study does not appear to be discouraged by leading universities elsewhere, and in some cases it is actively encouraged. Are students from less advantageous backgrounds more likely to select pre-University accounting? Although the pre-University educational systems of some nations were modelled on the UK A-level system (see Tho, 1994; Keef, 1992) similar research in other national settings would provide a valuable comparator.

Although the programme delivery and institutional setting is relatively stable over the sampled cohorts, the findings presented in this paper would benefit from replication to understand the comparative performance of students holding Accounting and other 'non-preferred' subjects at different Universities and courses, and across other cohorts. The results are limited by their reliance on one institution and one degree programme that may embed and reward particular skills and learning approaches that may advantage students with particular

subject experiences and learning styles. As well replicating this study across institutional settings, future research could also investigate differences across gender and look at the impact of A-level subject choices specifically on management as well as financial accounting performance, and across different 'non-preferred' disciplines.

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References

Alcock, J., Cockcroft, S. & Finn, F. (2008). 'Quantifying the advantage of secondary mathematics study for accounting and finance undergraduates', Accounting and Finance 48 pp697-718.
Baldwin, B.A. and Howe, K.R. (1982). 'Secondary level study of accounting and subsequent performance in the first college course', The Accounting Review 62/3 pp619-626.
Ball, S.J., Davies, J. David, M. and Reay, D. (2002). "Classification' and 'Judgement': social class and the 'cognitive' structures of choice of Higher Education', British Journal of Higher Education 23/1 pp51-72.
Ball, S.J. and Vincent, C. (1998). '"I heard it through the grapevine": 'hot' knowledge and school choice', British Journal of Sociology of Education 19/3 pp377-400.
Bartlett, S., Peel, M.J. and Pendlebury, M. (1993). 'From fresher to finalist: a three year analysis of student performance on an accounting degree programme', Accounting Education 2/2 pp111-122.
BBC (2008). 'University 'soft' A-level warning', BBC News 1 July www.bbc.co.uk <accessed 23.9.11>
Bergin, J.L. (1983). 'The effect of previous accounting study on student performance in the first college-level financial accounting course', Issues in Accounting Education 'Issue 1' pp19-28.
Brooks, R. (2002). 'Edinburgh, Exeter , East London - or employment? A review of research on young people's higher education choices', Educational Research 44/2 pp217-227.
Byrne, M. and Flood, B. (2008). 'Examining the relationships among background variables and academic performance of first year students at an Irish University, Journal of Accounting Education 26 pp202-212.
Byrne, M. and Willis, P. (2009). 'An exploration of tertiary accounting students' prior approaches to learning accounting', The International Journal of Management Education 7/3 pp35-46.
Coe, R., Searle, J., Barmby, P., Jones, K. and Higgins, S. (2008). Relative difficulty of examinations in different subjects. SCORE/Durham University, UK.
Davies, P., Davies, N., Hutton, D., Adnett, N. and Coe, R. (2009). 'Choosing in schools',

Oxford Review of Education 35/2 pp147-167.
Davies, P., Telhaj, S., Hutton, D., Adnett, N. and Coe, R. (2008). 'Socioeconomic background, gender and subject choice in secondary schooling', Educational Research 50/3 pp235-248.
Department of Education (2012). 'Reform of GCE A levels', letter to Glenys Stacey (Ofqual) dated 30 March.
Doran, B.M., Bouillon, M.L. and Smith, C.G. (1991). 'Determinants of student performance in accounting principles I and II', Issues in Accounting Education 6/1 pp74-84.
Duff, A. (2004). 'Understanding academic performance and progression of first year accounting and business economics undergraduates', Accounting Education 13/4 pp409-430.
Eskew, R.K. and Faley, R.H. (1988). 'Some determinants of student performance in the first college-level financial accounting course' The Accounting Review 63/1 pp137-147.
Fazackerley, A. and Chant, J. (2008). The hard truth about 'soft' subjects. Policy Exchange, London.
Fee, H., Greenan, K. and Wall, A. (2010). 'An investigation into secondary school exit standards', The International Journal of Management Education 8/2 pp43-52.
Green, J.P. (2011). 'The impact of a work placement or internship year on student final year performance', The International Journal of Management Education 9/2 pp49-57.
Grimston, J. and Waite, R. (2008). 'Universities bar entry to soft A-level subjects', The Sunday Times 6 Jan pp1.
Gul, F. and Fong, S.C.C. (1993). 'Predicting success for introductory accounting students', Accounting Education 2/1 pp33-42.
Guney, Y. (2009). 'Exogeneous and endogeneous factors influencing student's performance in undergraduate accounting modules', Accounting Education 18/1 pp51-73.
Higton, J., Noble, J., Pope, S, Boal, N., Ginnis, S., Donaldson, R. and Greevy, H. (2012). 'Fit for purpose? The view of the higher education sector, teachers and employers on the suitability of A levels', Ofqual, UK.
Jacobs, K. (2003). 'Class reproduction in professional recruitment', Critical Perspectives on Accounting 14 pp569-596.
Keef, S.P. (1992). 'The effect of prior accounting education', Accounting Education 1/1 pp63-68.
Kirkup, C., Wheater, R., Morrison, J., Durbin, B. and Pomati, M. (2010). Use of an apitude test in University entrance. National Foundation for Educational Research, UK.
London School of Economics and Political Science (2009). Undergraduate prospectus. LSE, UK.
Loveday, P.M. (1993). 'Exemptions from first semester accounting and performance in the second semester course', Accounting Education 2/2 pp143-150.
Mangan, J., Hughes, A., Davies, P. and Slack, K. (2010). 'Fair access, achievement and geography: explaining the association between social class and students' choice of University', Studies in Higher Education 35/3 pp335-350.
McPhail, K., Paisey, C. and Paisey, N.J. (2010). 'Class, social deprivation and accounting education in Scottish schools', Critical Perspectives on Accounting 21 pp31-50.
National Council for Educational Excellence (2008). Recommendations. Department for Innovation, Universities and Skills/HMSO, UK.
Ofqual (2012). 'A level reform', letter to Michael Gove (Secretary of State Dept of Education) dated 3 April
Rankin, M., Silvester, M., Vallely, M. and Wyatt, A. (2003). 'An analysis of the implications of diversity for students' first level accounting performance', Accounting and Finance 43 pp365-393.

Rohde, F.H. and Kavanagh, M. (1996). 'Performance in first year university accounting: quantifying the advantage of secondary school accounting', Accounting and Finance 36 pp275-285.
Oliver, C. and Kettley, N. (2010). 'Gatekeepers or facilitators: the influence of teacher habitus on students' approaches to elite universities', British Journal of Sociology of Education 31/6 pp737-753.
Sangster, A. and McCombie, I. (1993). 'How well do accountancy students understand a set of accounts?', Accounting Education 2/1 pp53-70.
Schroeder, N.W. (1986). 'Previous accounting education and college-level accounting exam performance', Issues in Accounting Education 1/1 pp37-47.
Shepherd, J. (2010). 'Top universities secretly list 'banned' A-levels - teachers', The Guardian 21 Aug pp1-2.
Shepherd, J. (2011). 'Gove blames Labour for 'soft' subjects studied', The Guardian 4 Feb www.guardian.co.uk <accessed 9.2.11>
Shepherd, J. (2011). 'Official: 'soft' A-levels damage chance of top university place: students who 'avoid challenge' of traditional subjects miss out', The Guardian 4 Feb pp1.
Surridge, I. (2008). 'Accounting and finance degrees:is the academic performance of placement students better?', Accounting Education 18/4 pp471-485.
Sutton Trust (2009). Attainment gaps between pupils in the most deprived and advantaged schools. Sutton Trust/LSE, UK.
The Panel on Fair Access to the Professions (2009). Unleashing aspiration. Cabinet Office, UK.
The Russell Group (2011). Informed choices. The Russell Group, London.
Tho, L.M. (1994). 'Some evidence on the determinants of student performance in the University of Malaysia introductory accounting course', Accounting Education 3/4 pp331-340.
Tobin, L. (2011). 'A-level subjects: what universities want', The Guardian 1 Feb www.guardian.co.uk <accessed 9.2.11>
Tobin, L. (2011). 'What do they want from us?', The Guardian 1 Feb Education pp1-2.
UCAS (2011). Admissions Process Review. UCAS, UK.
University of Birmingham (2009). Entry requirements. Www.business.bham.ac.uk/undergraduate/entry.shtml <accessed 21.7.09>
University of Cambridge (2009). Subject matters. Cambridge admissions office, UK.
University of Manchester (2011). Undergraduate Prospectus. University of Manchester, UK.
University of Sheffield (2011). Prospective Undergraduates: guidance on A-level subject requirements. www.sheffield.ac.uk/undergraduate/policies/alevel <accessed 23/11/11>
Wilson, R.M.S. (2011). 'Alignment in accounting education and training', Accounting Education 20/1 pp3-16.