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The effect of work placements on the academic performance of Chinese students in UK higher education

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Abstract

The main controversy as a result of the commercialisation of international education markets is that international students especially those from China are unable to perform as well as UK students in UK universities. So far, research has yet to identify the influence of placements on the academic performance of Chinese students from entry to graduation. Using four cohorts of accounting and finance students in a UK university, this present work is the first to find that Chinese students who undertake placements in the third year are seven times more likely to achieve good degrees (2.1 or 1st) than those who opt out of work placements. It is also found that Chinese students who have a high prior academic achievement and better academic results from years 1 and 2 are likely to undertake placements. Finally, the results show that the academic performance of international students is influenced by domicile.

Keywords: Chinese students; international students; placements; academic performance; individual differences; neoliberalism

Introduction

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Powered by neoliberalism, UK universities have begun recruiting a large number of international, especially Chinese, students since the 1990s. According to the OECD report (2014), Chinese students formed the largest group of international students and 28% of them enrolled in the USA while 11% of them enrolled in Australia and 11% in the UK. International students have become financially vital to universities in English speaking countries such as America, the UK, Australia, Canada and New Zealand (Nayland *et al.* 2013; Guo and Chase 2011). Recent changes to tuition fees in the UK saw a sharp decline of 13% in first year enrolment on UK higher education courses from 2011/12 to 2012/13 (HESA 2014_a), accentuating the need to recruit international students who pay higher tuition fees than home students. Chinese students formed the largest non EU domiciled undergraduate group in UK universities in 2012/13 and were nearly 5 times the number of students from India (HESA 2014_b).

The pressing pedagogic problem in the internationalisation of higher education is whether the educational systems across the world are meeting the learning needs of both home and international students. This study focuses on UK higher education since the UK hosted 13% of all international students, second only to the USA, and together English speaking countries such as the UK, USA, Australia and Canada accommodated 40% of all international students in 2012 (OECD 2014). Evidently, UK higher education is important to the understanding of how international students learn and perform in an English speaking environment. The performance trend of international students in UK higher education is relevant to other English speaking higher education systems.

Prior studies show that international students underperform UK students across a wide range of academic disciplines (Morrison *et al.* 2005; Iannelli and Huang 2013). In particular,

Chinese students are the worst performers among international students (Swain 2014; Iannelli and Huang 2013). Using HESA data, Iannelli and Huang (2013) find evidence to suggest that the academic performance of Chinese students had not improved between 1998 and 2009. This has been further supported by Crawford and Wang (2014a) who show that Chinese students significantly underperform UK students from the second year onwards in a UK university. Until now, research on Chinese students has yet to consider the impact of different degree study modes on their academic results from entry to graduation.

In UK higher education, degree programmes are often offered in two different modes, one called full-time and another sandwich. Full-time degrees refers to a three-year degree study programme without any break while sandwich degrees are four-year degree study programmes with a year-long industry or work placement sandwiched between the second and final years of the degree study period (Little and Harvey 2006). Prior studies reveal a significant mark improvement following year-long optional placements on UK and international students (Gomez *et al.* 2004; Mandilaras 2004; SurrIDGE 2009; Mansfield 2011; Reddy and Moores 2012; Crawford and Wang 2014b). So, it is argued that Chinese students who undertake placements should improve their academic performance in the final year.

This study aims to fill this gap in the literature by investigating the impact of placements on Chinese students in UK higher education. The next section evaluates the existing research on the impact of neoliberalism on the adoption of placements in universities, placements on academic performance, cultural and social factors on international students and individual factors on the academic performance of international students. It is followed by the regression analyses of the determinants of academic results. In this section, factors influencing performance such as placement status, prior academic achievement, prior academic

qualification and gender are explained and constructed before being included in the regressions. Finally, a discussion is formulated and conclusions are drawn while the limitations of this study and areas for further research are identified.

Literature review

Industrial placements, neoliberalism and academic performance

Industry placements are a rather new addition to higher education and are clearly influenced by neoliberal market principals. Neoliberalism has led to the implementation of funding and regulatory frameworks based on market mechanisms and new public management principles (Deem 2001; Naidoo and Jamieson 2006; Naidoo and Williams 2014). A succession of UK governments have expected universities to produce graduates who can contribute to the knowledge economy (Naidoo and Williams 2014). Work placements have been seen as a useful mechanism to facilitate the transfer of graduates from universities to workplace. In the 1950s, the National Council for Technological Awards advocated that undergraduate programmes in engineering and technology should incorporate a planned period of industrial placement (Little and Harvey 2006). An increasing emphasis on university education to incorporate key elements of employability skills into first degree courses has begun since 1997 (Dearing 1997; Wilson 2012), which coincided with an expansion of UK higher education as a result of the Further and Higher Education Act 1992 (HEFCE 2011).

As explained by Naidoo and Williams (2014), governments create the conditions for a quasi-market where universities are set up to compete against each other to achieve governmental goals. However, high status universities which have greater reputational and other resources are able to resist external forces for change while lesser status universities are less able to resist market forces (Naidoo and Williams 2014). That is exactly what has happened in UK higher education regarding the kinds of universities which have actively participated in

offering placements to undergraduate students. A recent study reveals that research intensive universities did not deliver placements as an additional offering to students (E4E 2011; Kettis *et al.* 2013). Instead, nearly 70% of all placements to business and industry between 2003 and 2009 were filled by students from twenty universities (E4E 2011). Except for six universities which acquired university status and were strongly linked to science and engineering before 1992, the other fourteen universities are so called “new universities” or post-1992 universities which were former polytechnics and gained university status after 1992.

Although old and research intensive universities are not enthusiastic about placements, the positive impacts of placements on the development of employability skills, the increasing chance of securing graduate jobs and the academic performance of students are well documented in prior studies (Blackwell and Harvey 1999; Bowes and Harvey 2000; Little and Harvey 2006; Tibby 2012; Jackson 2014; SurrIDGE 2009; Duignan 2003; Gomez *et al.* 2004; Reddy and Moores 2006; Mansfield 2011; Moores and Reddy 2012; Reddy and Moores 2012; Crawford and Wang 2014b). In particular, the literature uniformly reports that placements increase students’ chances of obtaining a good degree and improve their final year academic results by using students from different universities and studied on a wide range of academic disciplines such as accounting and finance, business studies, bioscience, human psychology and property management and development (Duignan 2003; Gomez *et al.* 2004; Mandilaras 2004; Reddy and Moores 2006; SurrIDGE 2009; Mansfield 2011; Reddy and Moores 2012; Crawford and Wang 2014b).

Two issues related to placements are still debatable in the literature. First, there are inconsistencies in findings as to whether there is a self-selection issue among students who undertake placements. The majority of papers find that placement students are academically

better than full-time students before placements (Duignan 2003; Gomez *et al.* 2004; Reddy and Moores 2012; Crawford and Wang 2014b) while SurrIDGE (2009) and Mansfield (2011) find no evidence to support that. Second, there is a lack of empirical reporting of learning transfer from the workplace to university (Auburn 2007; Blume *et al.* 2010; Lucas and Tan 2013). As cited in Auburn (2007), a number of earlier studies find that students who undertake supervised work experience do not perceive a close relationship between work placements and their academic work at college or university. Similarly, Lucas and Tan (2013) find that placements do not appear to improve student capacity to engage in critical thinking. It is possible that improved final year results following placement are down to soft skills such as better time management, confidence and responsibility, acquired through work experience (Reddy and Moores 2006; Little and Harvey 2006).

Chinese students in English speaking countries

International students studying in a culture different from their own have more problems in adjustment than home students due to new social and educational organisations, behaviour, expectations, cultural factors and values (Zhou *et al.* 2008; Valiente 2008; Guo and Chase 2011). One big barrier in cross-cultural interactions is the different learning and teaching perceptions and approaches between East and West (Skyrme 2007; Wang *et al.* 2012; Wang 2012). Distinctive Chinese learners are identified due to their apparent preference towards rote-learning and memorisation, compared with their western counterparts (Ballard and Clanchy 1984; Yuen and Lee 1994; Auyeung and Sand 1996; De Vita 2001). However, this stereotypical view has been criticised in recent years as studies show that Chinese students are capable of adapting learning approaches and strategies to fit in with the new learning and cultural context (Gao 2006; Gao 2008; Wang 2012), and there is not a single and right learning approach which could suit every student in multicultural learning environments (Valiente 2008). More recently, universities, teachers or lecturers in English speaking

countries use the internationalisation of their curriculums and learning environments to enhance cultural synergy between home and international students and between teachers and international students (Zhou et al. 2008; Guo and Chase 2011; Wang 2012; Wang *et al.* 2012; Motto-Smith 2013).

The literature on international students mostly focuses on their learning experience and environments and does not directly explain the performance variations between international and home students. Published research on the academic performance of international students is limited and generates conflicting results (Morrison *et al.* 2005). A couple of studies (Bie 1976; Marshall and Chilton 1995) suggest that international students perform better than home students while other studies find underperformance among international students (Jochems *et al.* 1996; Makepeace and Baxter 1990; De Vita 2002).

The influx of international students to UK universities since the 1980s has sparked a renewed interest in the academic performance of international students. Morrison *et al.* (2005) reveal that the academic performance of international students is varied across nationalities and disciplines. Students from the EU, Asia, Africa and the Middle East perform less well than UK students while students from North and South America, non-EU Europe and Australasia show no significant performance difference from UK students. International students who study physical science are more likely to achieve a good degree than UK students while international students majoring in business studies, computer science, social science and education are less likely to obtain a good degree than UK students. Similar to UK students, international students are not a homogeneous group in terms of country of origin, ability, attitude, level of prior qualification and so forth (Morrison *et al.* 2005). Research on UK students shows that a number of individual factors such as age, gender, ethnicity, prior

academic achievement, discipline of study and mode of study influence academic performance to various degrees (Smith and Naylor 2001, Richardson and Woodley 2003, Richardson 2008, Richardson 2012, Cassidy 2012 and Sheard 2009).

When focusing on Chinese students, Iannelli and Huang (2013) find that Chinese students consistently underperformed UK and other international students from the 1980s to 2009. Similar to UK and other international students, certain groups of Chinese students are significantly more likely to obtain a good degree than others. Female Chinese students, students graduating from older universities (formed before 1992) and students majoring in computer science, engineering, social science, humanities and science are likely to gain a good degree. They also notice that Chinese students with GCE A-level (The General Certificate of Education Advanced Level, shortened to A level hereafter) results before entry are likely to obtain a good degree. A-level is the standard entry qualification for UK universities and is a subject-based qualification mostly taken by UK or international students aged 16–19. They attribute the good performance of those Chinese students to the earlier familiarisation with the UK educational system regarding teaching and learning or simply to a more intense exposure to the English language. They believe that language difficulties can be a substantial barrier for Chinese students studying abroad.

The findings by Iannelli and Huang (2013) suggest that the performance differences between Chinese students, UK students and other international students should be diminished if Chinese students study in older universities and have a good command of English and A-level study experience. Using Chinese accounting and finance students who fit in with those descriptions, Crawford and Wang (2014a) report that Chinese students are far less likely to obtain good degrees than UK students. Moreover, the academic performance of Chinese

students is not related to gender, prior academic qualification and prior academic achievement. Until now, no research systematically examines the effect of placements on the academic performance of Chinese students from entry to graduation. It is known that international students have a low participation rate in placements compared with UK students (Little and Harvey 2006; Lucas and Tan 2013; Crawford and Wang 2014b).

Research design

Participants

This article is able to examine the impact of placements on the academic performance of Chinese students because it is based in a leading business school in a research intensive UK university formed before 1992 and renowned for their excellent placement programmes (E4E; Bullock *et al.* 2009). The business school has very high entry requirements for international students. Potential students are expected to achieve at least 3 A grades from A level or have equivalent results from other national and international pre-university examinations such as foundation courses, baccalaureate, etc. (for detail, see Crawford and Wang 2014c). International students additionally need to obtain at least IELTS (International English Language Testing System) level 7 for a successful application. Good English skills and prior entry academic achievement are likely to place international students on a level playing field with UK students, as indicated by Iannelli and Huang (2013).

The degree programmes which are specially selected for this study are the BSc (Hons) accounting and finance (BAF) full-time and sandwich (a year-long placement) programmes, due to the fact that those programmes are most popular among Chinese students. 57% of sample students were international and 57% of international students were Chinese for the period from 2006/07 to 2009/10. To complete a BAF sandwich programme, students must undertake a 39-week long work placement between the second and final years.

Data set

This is a longitudinal study which tracks the academic performance of four cohorts of students through the degree study period of 3 or 4 years. Four cohorts of students were enrolled between 2006/07 and 2009/10. Yearly marks of students were recorded by the department database while students' personal and individual data were collected by the registry. Placement information was collated from the placement office. Students were identified by a unique but anonymous student number rather than by name. The following types of data were obtained: the year of enrolment; the year of graduation; domicile of student; the yearly average result, the degree average mark, final degree classification, mode of study (full-time or sandwich), gender, age (mature/not mature), prior academic qualification and prior academic achievement on entry.

All registered students were included in the analysis. However, the sample size reduced yearly because of a number of students (23, 21 and 2, respectively) who dropped out by the end of years 1, 2 and 3. The data of four cohorts of students were combined together for the analysis to reduce the risk of small sample size for individual years and the risk of the impact of an atypical year on the statistical analyses. As noted by Morrison *et al.* (2005), the academic performance of international students is influenced by their nationalities. Thus, four cohorts of BAF students were categorised by domicile in Table 1. Table 1 reveals two dominant nationalities, Chinese (33%) and British (43%), who accounted for 75% of the sample students. Students from other countries and regions represented nearly a quarter of the whole sample (25%). Statistically, it is impossible to obtain reliable analysis using the academic performance of one Albanian student or 10 Hong Kong students to compare with that of Chinese (103) and UK (134) students. Thus, sample students were clustered into three

subgroups, UK group, Chinese group and international (non-Chinese) group which included students from 30 nations and regions, for subsequent analyses.

Insert Table 1

Methodologies and variables

Multiple and binary regressions were used to understand the effects of placements on yearly and final degree academic marks as well as final degree classifications which were a binary dependent variable taking 1 if students obtained good degrees and zero otherwise, similar to prior studies (Morrison *et al.* 2005; Mansfield 2011; Crawford and Wang 2014b; SurrIDGE 2009; Rankin *et al.* 2003; Duff 2004; Richardson 2008; Richardson 2012). Based on the literature, a range of independent variables which reflect individual differences in prior academic achievement, prior academic qualification and gender among home and international student groups were included in regressions along with mode of study (sandwich or full-time) (Richardson 2008; Richardson 2012; Morrison *et al.* 2005; Iannelli and Huang 2013; Crawford and Wang 2014a; Crawford and Wang 2014b).

As pointed out by Mansfield (2011), the most appropriate measure for prior academic achievement should be exam results prior to higher education. Previous papers (NAO 2002_a; NAO 2002_b; Duff 2004; Crawford and Wang 2014c; Crawford and Wang 2014a; Crawford and Wang 2014b) show that the academic performance of university students is strongly correlated with 3 or more A grades. In this study, students who obtained 3 or more A grades from A level were considered as academically strong. Prior academic results from non-A level qualifications were converted to the number of A grades if their detailed results were recorded by the registry. In some cases when prior academic results of students were not clearly documented by the registry, those students were treated as without any prior academic information. Thus, prior academic achievement had three categories and was dummy coded

into two variables, one called 3As (3 or more A grades=1; non 3 As and no info =0) and one called non 3As (non 3As =1; no info and 3As =0).

The other independent variables in regressions were constructed as follows: gender (male=0; female=1); placement (mode of study) (full-time=0; sandwich=1) and prior academic qualification (non-A level=0; A level=1). Age is not considered in this study and is justified on the basis of underrepresentation of mature students in the sample. Two students among the four cohorts were classified as mature students at entry while the rest were young students.

The detailed student information by independent variables and degree classifications is reported in Table 2 based on three identified domicile groups. UK group had the highest percentage of good degrees (69%) while only 34 per cent of Chinese students obtained good degrees. 45% of UK students had 3 or more A grades on entry, compared to 27% and 22% respectively among Chinese and international (non-Chinese) students. 57% of UK students undertook placements while lower placement participation rates were found among Chinese students (16%) and international (non-Chinese) students (31%). Less than a half (43%) of international (non-Chinese) students obtained A levels, compared to 93% of UK students and 61% of Chinese students. There were more males than females in UK and international (non-Chinese) groups while 62% of Chinese students were female.

Insert Table 2

Results

The data were tested for normality, linearity and homoscedasticity, independence of errors and multicollinearity and no assumptions underpinning the regression analyses were violated. Regressions reveal different effects of placements on the academic performance of the three domicile groups and the results are shown in Table 3. Placements are strongly correlated to

the academic performance of Chinese and UK students but are unable to explain that of international (non-Chinese) students.

The performance of UK students is consistently and significantly related to prior academic achievement and placement. Students with excellent prior academic achievement (represented by 3 or more A grades) significantly outperform students with weak prior academic achievement and no prior achievement information across the degree study period though the magnitude has gradually decreased from 6.8 to 3.6 marks. UK sandwich students significantly perform better than UK full-time students from the first year to the final year after controlling for prior academic achievement. The impact of placements on academic results has gained momentum year after year for UK sandwich students gain 6 and 8 more marks than UK full-time students in the first and final years, respectively. Females perform significantly better than males in the second (3.2) and final (3.6) years while UK students without A-level experience perform significantly worse than UK students with A-level experience in the first (-9.2) and second (-7.3) years. The benefit of A-level experience finally reduces to an insignificant level in the final year.

Among Chinese students, placements are the only factor which is significant across the degree study period while gender is related to the academic performance only in the second year. The regression model for year 1 is insignificant ($P > 0.1$) so fails to explain the variability of year 1 marks of Chinese students. The models for year 2 and final year are significant and explain about 8% of the variability of marks. The impact of placements peaks in the second year when Chinese sandwich students outperform Chinese full-time students by 7.3 marks. In the final year, the performance difference between Chinese sandwich and full-time students drops to 5.8 marks, statistically significant at a 1% level. Chinese females

achieve a significant 4.7 more marks than Chinese males in the second year only. Finally, all models for international (non-Chinese) students are insignificant and are unable to explain any variations in marks.

Insert Table 3

The binary regression results are largely in line with the results of the regression models and are presented in Table 4. The binary regression models are significant in Chinese and UK cases and explain around 23% to 39 % of the variability in degree classifications. Chinese and UK students are likely to achieve a good degree if they have 3 or more A grades from A level and take up a placement in the third year. The statistical effects of placements on Chinese and UK students are little different: UK sandwich students are 12 times more likely to obtain a good degree than UK full-time students while Chinese sandwich students are 7 times more likely to attain a good degree than Chinese full-time students. The impact of prior academic achievement on UK and Chinese students is similar. Students with 3 or more A grades in Chinese and UK groups are 5 times more likely to achieve a good degree than the rest. The binary model for international (non-Chinese) group is insignificant and no factor is likely to influence their final degree classifications.

Insert Table 4

Discussion and conclusions

The current research is the first to report a self-selection issue among Chinese students and the significant benefit of placements on academic results of Chinese students in the final year. UK and Chinese students in this study exhibit a self-selection issue since sandwich students consistently and significantly outperform full-time students in the first two years prior to placements. Several prior studies find evidence of a self-selection issue among UK students (Duignan 2003; Gomez *et al.* 2004; Reddy and Moores 2012; Crawford and Wang 2014b). As suggested by Mansfield (2011), a self-selection issue is likely to be caused by two

possibilities: academically weak students do not perform well in interviews or employers preferentially select higher achieving students for placements. The reasons triggering a self-selection issue in UK higher education are beyond the scope of this research. Instead, this research is to see whether Chinese students can academically benefit from learning transfer from workplace to university. It is evident that Chinese sandwich students continuously and significantly outperform Chinese full-time students following the placement year.

Although Chinese and UK sandwich students both significantly outperform their full-time counterparts across the degree study period, Chinese sandwich students do not benefit from placement as much as UK sandwich students in the final year. UK sandwich students gain 8 more marks than UK full-time students while Chinese sandwich students achieve a smaller 6 more marks than Chinese full-time students. Moreover, UK sandwich students gradually perform better than UK full-time students from the second year to the final year ($8.3-6=2.3$) while the academic performance difference between Chinese sandwich and full-time students is a drop of nearly two marks from the second year to the final year ($5.8-7.3=$ minus 1.5). So, it is not surprising to observe that placements have different statistical powers in determining the likelihood of obtaining good degrees among UK and Chinese students. UK sandwich students are 12 times more likely to obtain good degrees than UK full-time students while it diminishes to 7 times among Chinese students. It appears that Chinese sandwich students are on average not as good at transferring knowledge from workplace to university as UK sandwich students.

Knowledge transfer from workplace to university among sandwich students is difficult and cannot happen automatically (Duignan 2003). For placements to enhance academic performance afterwards, it is important to ensure two-way flows of learning transfer: from the

academic domain to the workplace and back to the academic domain following placements (Cornford 2002). It is not easy for Chinese students to adjust to English speaking higher education learning environments without interventions from teachers, lecturers and fellow students (Guo and Chase 2011; Wang 2012; Motto-Smith 2013; Wang 2012; Wang *et al.* 2012). It is probably very difficult for Chinese students to fit into an English speaking workplace, relate work experience to academic knowledge and readapt in learning environments again following placements. Possibly, university and workplace supervisors need to make efforts to accommodate and debrief Chinese students in the workplace and in the university following placements so that they can fully utilise work experience to benefit their academic study.

So far, no study in the literature investigates knowledge transfer from workplace to university among Chinese or other international students. Among UK psychology students, Auburn (2007) finds clear evidence of placement learning in terms of individual knowledge, skills and values but a separation between the academic and practical arenas, enforced by academic staff, limiting and controlling the opportunities for students to utilise their work experience in academic study. Using UK business undergraduate students, Duignan (2003) suggests that universities need to take an active role in promoting learning through work experience to achieve predetermined learning outcomes. Among two placement approaches, the work environment model in which the university has little involvement excepting preparing students for placements and the learning environment model in which the university takes an active role in all stages of the placement experience, only students under the latter approach are able to improve their academic performance following placements (Duignan 2003). It appears that academic staff and universities are instrumental in helping sandwich students in knowledge transfer from workplace to university.

This paper further shows the differences among students with different domiciles. In line with previous studies (Richardson and Woodley 2003; Richardson 2012), the academic performance of UK students is related to prior academic qualification, prior academic achievement and gender while those factors are not significant among international (non-Chinese) students, similar to the results reported by Morrison *et al.* (2005). Chinese students with excellent prior academic achievement are most likely to obtain good degrees, in line with the results shown by Iannelli and Huang (2013). Those results suggest the importance of understanding international students by domicile as suggested by Morrison *et al.* (2005).

The results of this study have two practical implications. First, English speaking universities should encourage Chinese undergraduate students to undertake placements. As shown here, Chinese students who undertake placements are 7 times more likely to obtain good degrees than other Chinese students who opt out of placements. Moreover, the placement experience can also improve sandwich students' chances of obtaining graduate jobs and possibly higher subsequent incomes (Blackwell *et al.* 2001; Moores and Reddy 2012; High Fliers Research 2014). National agencies (British Council 2004; NUS 2012) report that improving one's employability through overseas study becomes an issue of major significance to international students. The positive effects of placements on Chinese students can help universities improve their rankings on published league tables because of an improved percentage of good degrees awarded and employment rate 6 months following graduation. Second, when Chinese students undertake placements, universities should not automatically deploy the same supervision process on those students as on home students. Chinese students possibly require more assistance in adapting to the workplace and readapting back to the academic domain if universities expect them to benefit from placements as much as home students.

Limitations and further studies

This study has a limitation due to its sole reliance on the quantitative approach. The current research will be greatly enriched if qualitative methods such as interviews and surveys can be used to understand the impact of cultural factors, learning environment, interactions with lecturers and fellow students, work environment, work experience, learning approaches, personalities and assessment preferences on international students (Lucas 2000; Lucas 2001; Lucas and Meyer 2005; Sheard 2009; Cassidy 2012; Furnham *et al.* 2011; Wang *et al.* 2012; Zhou *et al.* 2008; Gao 2008). In particular, future studies need to consider how to combine qualitative measurements with quantitative results in understanding the academic performance of Chinese and other international students. Currently, the results of interview studies are reported in themes which can hardly be used in regressions to interpret the academic performance of international students. On the other hand, it is statistically difficult in proving relationships between academic results and survey measurements of student learning approaches. Finally, more studies are needed to understand the effect of placements on academic results of Chinese and other international students enrolled on different academic disciplines and in different English speaking universities.

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Table 1. Descriptive statistics of sample students by the enrolment year and domicile.

| Nationality | 2006/07 | 2007/08 | 2008/09 | 2009/10 | Total | Percentage |
|-----------------|-----------|-----------|-----------|------------|------------|------------|
| Albanian | 0 | 0 | 1 | 0 | 1 | 0.3% |
| American | 0 | 0 | 1 | 0 | 1 | 0.3% |
| Brazilian | 0 | 0 | 1 | 0 | 1 | 0.3% |
| Bulgarian | 0 | 0 | 2 | 4 | 6 | 1.9% |
| Cypriot | 0 | 2 | 2 | 1 | 5 | 1.6% |
| French | 0 | 0 | 1 | 0 | 1 | 0.3% |
| German | 1 | 0 | 0 | 0 | 1 | 0.3% |
| Hong Kong | 3 | 5 | 2 | 0 | 10 | 3.2% |
| Indian | 0 | 3 | 0 | 3 | 6 | 1.9% |
| Indonesian | 1 | 1 | 0 | 0 | 2 | 0.6% |
| Iranian | 1 | 0 | 0 | 0 | 1 | 0.3% |
| Italian | 0 | 0 | 0 | 1 | 1 | 0.3% |
| Japanese | 0 | 1 | 0 | 1 | 2 | 0.6% |
| Lithuanian | 0 | 1 | 0 | 2 | 3 | 1.0% |
| Macanese | 0 | 0 | 0 | 1 | 1 | 0.3% |
| Malaysian | 0 | 1 | 0 | 1 | 2 | 0.6% |
| Mauritian | 0 | 1 | 0 | 0 | 1 | 0.3% |
| Norwegian | 0 | 1 | 0 | 1 | 2 | 0.6% |
| Pakistani | 2 | 0 | 1 | 1 | 4 | 1.3% |
| Polish | 1 | 0 | 2 | 0 | 3 | 1.0% |
| Portuguese | 0 | 1 | 0 | 0 | 1 | 0.3% |
| Romanian | 0 | 1 | 1 | 0 | 2 | 0.6% |
| Russian | 0 | 2 | 0 | 1 | 3 | 1.0% |
| Singaporean | 0 | 0 | 0 | 1 | 1 | 0.3% |
| Slovak | 0 | 0 | 0 | 1 | 1 | 0.3% |
| South Korean | 1 | 0 | 1 | 3 | 5 | 1.6% |
| Spanish | 1 | 0 | 0 | 0 | 1 | 0.3% |
| Taiwanese | 2 | 1 | 0 | 0 | 3 | 1.0% |
| Ukrainian | 0 | 0 | 0 | 1 | 1 | 0.3% |
| Vietnamese | 0 | 0 | 1 | 4 | 5 | 1.6% |
| Subtotal | 13 | 21 | 16 | 27 | 77 | 24.5% |
| Chinese | 29 | 22 | 25 | 27 | 103 | 32.8% |
| UK | 29 | 31 | 28 | 46 | 134 | 42.7% |
| Total | 71 | 74 | 69 | 100 | 314 | 100.0% |

Notes: Percentages are calculated using the total registered student number, 314.

Table 2 Descriptive statistics of sample students based on prior academic qualification, prior academic achievement, gender, placement and degree classification by the enrolment year and by three domicile groups.

| | 2006/07 | 2007/08 | 2008/09 | 2009/10 | Total | Percentage |
|------------------------------------|---------|---------|---------|---------|-------|------------|
| UK students | | | | | | |
| Mode of study | | | | | | |
| Full-time | 10 | 12 | 10 | 26 | 58 | 43.3% |
| Sandwich (placements) | 19 | 19 | 18 | 20 | 76 | 56.7% |
| Gender | | | | | | |
| Females | 15 | 14 | 14 | 19 | 62 | 46.3% |
| Males | 14 | 17 | 14 | 27 | 72 | 53.7% |
| Prior qualifications | | | | | | |
| GCE A-Levels | 28 | 27 | 25 | 44 | 124 | 92.5% |
| Others (non A levels) | 1 | 4 | 3 | 2 | 10 | 7.5% |
| Prior academic achievements | | | | | | |
| 3As | 8 | 17 | 18 | 17 | 60 | 44.8% |
| No 3As | 20 | 12 | 8 | 29 | 69 | 51.5% |
| No info | 1 | 2 | 2 | 0 | 5 | 3.7% |
| Degree classifications | | | | | | |
| Good degrees | 18 | 26 | 26 | 23 | 93 | 69.4% |
| Other degrees | 9 | 3 | 2 | 13 | 27 | 20.1% |
| Drop outs | 2 | 2 | 0 | 10 | 14 | 10.4% |
| Chinese students | | | | | | |
| Mode of study | | | | | | |
| Full-time | 23 | 15 | 24 | 25 | 87 | 84.5% |
| Sandwich (placements) | 6 | 7 | 1 | 2 | 16 | 15.5% |
| Gender | | | | | | |
| Females | 23 | 11 | 15 | 15 | 64 | 62.1% |
| Males | 6 | 11 | 10 | 12 | 39 | 37.9% |
| Prior qualifications | | | | | | |
| GCE A-Levels | 20 | 15 | 13 | 15 | 63 | 61.2% |
| Others (non A levels) | 9 | 7 | 12 | 12 | 40 | 38.8% |
| Prior academic achievements | | | | | | |
| 3As | 6 | 5 | 8 | 9 | 28 | 27.2% |
| No 3As | 14 | 10 | 4 | 6 | 34 | 33.0% |
| No info | 9 | 7 | 13 | 12 | 41 | 39.8% |
| Degree classifications | | | | | | |
| Good degrees | 9 | 10 | 11 | 5 | 35 | 34.0% |
| Other degrees | 17 | 8 | 11 | 13 | 49 | 47.6% |
| Drop outs | 3 | 4 | 3 | 9 | 19 | 18.4% |
| International students | | | | | | |
| Mode of study | | | | | | |

| | | | | | | |
|------------------------------------|---|----|----|----|----|-------|
| Full-time | 9 | 15 | 11 | 18 | 53 | 68.8% |
| Sandwich (placements) | 4 | 6 | 5 | 9 | 24 | 31.2% |
| Gender | | | | | | |
| Females | 5 | 8 | 7 | 14 | 34 | 44.2% |
| Males | 8 | 13 | 9 | 13 | 43 | 55.8% |
| Prior qualifications | | | | | | |
| GCE A-Levels | 6 | 11 | 6 | 10 | 33 | 42.9% |
| Others (non A levels) | 7 | 10 | 10 | 17 | 44 | 57.1% |
| Prior academic achievements | | | | | | |
| 3As | 2 | 5 | 3 | 7 | 17 | 22.1% |
| No 3As | 6 | 7 | 4 | 9 | 26 | 33.8% |
| No info | 5 | 9 | 9 | 11 | 34 | 44.2% |
| Degree classifications | | | | | | |
| Good degrees | 4 | 9 | 7 | 16 | 36 | 46.8% |
| Other degrees | 7 | 9 | 6 | 6 | 28 | 36.4% |
| Drop outs | 2 | 3 | 3 | 5 | 13 | 16.9% |

Notes: 2006, 2007, 2008 and 2009 refer to the enrolment year when sample students were registered with the university. Prior academic qualifications: GCE A level represents all students who studied A level in high school; foundation, baccalaureate and others include students who studied foundation courses, European or international baccalaureate, and other overseas qualifications which are equivalent of A level. Prior academic achievement: 3 As refer to the students having 3 or more A grades in A level study; Non 3 As represents the students having fewer than 3 A grades and no info refers to the students whose prior academic qualifications cannot be converted into the number of A grades. Degree classification: good degrees include first or upper second degrees and others refer to the rest.

Table 3 Regression analyses of years 1, 2, final year and degree average marks by three domicile groups.

| Regression models | | | | |
|--|---------------|---------------|---------------|---------------|
| UK students | Year 1 | Year 2 | Final year | Degree mark |
| Constant | 63.836 | 60.861 | 62.254 | 61.584 |
| Sig (p-value) | 0.000 | 0.000 | 0.000 | 0.000 |
| Qualification (A Level=1; other=0) | -9.174 | -7.278 | -5.631 | -6.176 |
| Sig (p-value) | 0.006 | 0.042 | 0.074 | 0.051 |
| 3As (3As =1; non 3As and No info =0) | 6.822 | 6.011 | 3.557 | 4.452 |
| Sig (p-value) | 0.000 | 0.000 | 0.002 | 0.000 |
| Non 3 As (Non 3As =1; 3As and no info=0) | -6.175 | -2.948 | -6.072 | -4.994 |
| Sig (p-value) | 0.171 | 0.568 | 0.163 | 0.253 |
| Gender (M=0; F=1) | 1.505 | 3.201 | 3.567 | 3.499 |
| Sig (p-value) | 0.229 | 0.024 | 0.002 | 0.003 |
| Placement (FT=0; Sandwich=1) | 5.571 | 5.974 | 8.303 | 7.479 |
| Sig (p-value) | 0.000 | 0.000 | 0.000 | 0.000 |
| Adjusted R square | 0.308 | 0.254 | 0.372 | 0.358 |
| F | 12.839 | 9.384 | 15.109 | 14.244 |
| Sig. | 0.000 | 0.000 | 0.000 | 0.000 |
| No of cases | 134 | 124 | 120 | 120 |
| Chinese students | | | | |
| Constant | 46.756 | 37.449 | 48.234 | 46.950 |
| Sig (p-value) | 0.000 | 0.001 | 0.000 | 0.000 |
| Qualification (A Level=1; other=0) | 11.305 | 11.599 | 5.182 | 7.028 |
| Sig (p-value) | 0.275 | 0.294 | 0.486 | 0.325 |
| 3As (3As =1; non 3As and No info =0) | 0.952 | 3.760 | 3.729 | 3.308 |

| | | | | |
|--|--------------|--------------|--------------|--------------|
| Sig (p-value) | 0.715 | 0.195 | 0.076 | 0.101 |
| Non 3 As (Non 3As =1; 3As and no info=0) | 10.535 | 12.157 | 8.861 | 9.370 |
| Sig (p-value) | 0.309 | 0.272 | 0.235 | 0.191 |
| Gender (M=0; F=1) | 2.704 | 4.696 | 0.224 | 0.242 |
| Sig (p-value) | 0.197 | 0.046 | 0.897 | 0.884 |
| Placement (FT=0; Sandwich=1) | 6.764 | 7.337 | 5.833 | 5.492 |
| Sig (p-value) | 0.016 | 0.015 | 0.007 | 0.008 |
| Adjusted R square | 0.043 | 0.081 | 0.077 | 0.067 |
| F | 1.909 | 2.666 | 2.390 | 2.186 |
| Sig. | 0.100 | 0.027 | 0.045 | 0.064 |
| No of cases | 103 | 95 | 84 | 84 |

International students

| | | | | |
|--|---------------|---------------|---------------|---------------|
| Constant | 59.750 | 59.294 | 62.439 | 62.819 |
| Sig (p-value) | 0.000 | 0.000 | 0.000 | 0.000 |
| Qualification (A Level=1; other=0) | -1.334 | -1.428 | -2.605 | -2.839 |
| Sig (p-value) | 0.756 | 0.665 | 0.347 | 0.333 |
| 3As (3As =1; non 3As and No info =0) | 4.188 | -0.193 | -0.007 | -0.897 |
| Sig (p-value) | 0.331 | 0.953 | 0.998 | 0.744 |
| Non 3 As (Non 3As =1; 3As and no info=0) | -1.748 | -2.199 | -2.792 | -3.927 |
| Sig (p-value) | 0.701 | 0.536 | 0.364 | 0.229 |
| Gender (M=0; F=1) | 0.034 | 2.933 | 2.449 | 2.824 |
| Sig (p-value) | 0.992 | 0.245 | 0.232 | 0.193 |
| Placement (FT=0; Sandwich=1) | 4.930 | 1.773 | 2.310 | 1.521 |
| Sig (p-value) | 0.156 | 0.498 | 0.267 | 0.489 |
| Adjusted R square | -0.007 | -0.043 | -0.014 | -0.023 |
| F | 0.897 | 0.440 | 0.822 | 0.722 |
| Sig. | 0.488 | 0.819 | 0.539 | 0.610 |

No of cases

77

69

64

64

Notes: Y1, Y2, final year and degree average marks are analysed using the regressions which include the following variables: gender (male=0; female=1); placement (mode of study) (full-time=0; sandwich=1); qualification (non-A level=0; A level=1); prior academic achievement has three categories, students with 3 or more A grades, students with fewer than 3 A grades and students with no prior academic information and is dummy coded into two variables, one called 3As (3 or more A grades=1; non 3 As and no info =0) and one called non 3As (non 3As =1; no prior academic information and 3As =0). Student numbers for each domicile group reduce by year due to drop outs. Bold italic numbers represent statistically significant at 1% or 5% level.

Table 4 Binary regression analyses of degree classification by three domicile groups.

| Binary Logistic | | | |
|---|---------------|------------------|------------------------|
| Final Degree Classification [good degrees (first and 2.1)=1; other degrees=0] | | | |
| | UK students | Chinese students | International students |
| Constant | | | |
| B | 20.132 | -23.474 | 0.040 |
| Exp(B) | 553700248.077 | 0.000 | 1.041 |
| Sig (p-value) | 0.999 | 1.000 | 0.959 |
| Qualification (A Level=1; other=0) | | | |
| B | -21.233 | 21.803 | -0.169 |
| Exp(B) | 0.000 | 1.000 | 0.845 |
| Sig (p-value) | 0.999 | 2943402579.934 | 0.824 |
| 3As (3As =1; non 3As and No info =0) | | | |
| B | 1.585 | 1.603 | 0.251 |
| Exp(B) | 4.881 | 4.970 | 1.285 |
| Sig (p-value) | 0.006 | 0.017 | 0.722 |
| Non 3 As (Non 3As =1; 3As and no info=0) | | | |
| B | -20.185 | 22.736 | -0.492 |
| Exp(B) | 0.000 | 1.000 | 0.611 |
| Sig (p-value) | 0.999 | 7481147379.784 | 0.551 |
| Gender (M=0; F=1) | | | |
| B | 0.780 | 0.138 | 0.506 |
| Exp(B) | 2.181 | 1.148 | 1.659 |
| Sig (p-value) | 0.153 | 0.793 | 0.361 |
| Placement (Placement=1; Full-time=0) | | | |
| B | 2.488 | 1.920 | 0.661 |
| Exp(B) | 12.040 | 6.819 | 1.938 |

| | | | |
|---------------------|---------------|---------------|-------|
| Sig (p-value) | 0.000 | 0.006 | 0.239 |
| Nagelkerke R Square | 0.390 | 0.233 | 0.068 |
| Chi-Square | 35.485 | 15.967 | 3.355 |
| Sig. | 0.000 | 0.007 | 0.645 |
| No of cases | 120 | 84 | 64 |

Notes: Dependent variable is a binary variable taking up 1 if a student obtains a good degree (1st or upper 2nd) and zero otherwise. Independent variables include the following: gender (male=0; female=1); placement (mode of study) (full-time=0; sandwich=1); qualification (non-A level=0; A level=1); prior academic achievement has three categories, students with 3 or more A grades, students with fewer than 3 A grades and students with no prior academic information and is dummy coded into two variables, one called 3As (3 or more A grades=1; non 3 As and no info =0) and one called non 3As (non 3As =1; no prior academic information and 3As =0). The models exclude all dropout students. Bold italic numbers represent statistically significant at 1% or 5% level.