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Student academic performance and professional training year

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October 2017

Abstract

This paper studies the relationship between students' academic performance and the likelihood of attaining work experience as part of their undergraduate studies. The econometric analysis based on a sample of students from the School of Economics at the University of Surrey shows that the average of first-year marks is positively associated with subsequently securing a placement year. The mean predicted probability of obtaining a placement position is approximately 50% if a student's average first-year grade is 50, and the probability rises to 67% and 80% if the student achieves an average first-year grade of 60 and 70, respectively. Other relevant factors that affect the likelihood of securing a placement year are the course of study, the student's nationality and ethnic group. On the other hand, school type and A-level grades in mathematics or in economics have *no* effect on the chance of securing a placement year.

Keywords: Academic performance; placement; employability; economics.

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Abstract

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1 Introduction

Many Higher Education (HE) institutions in the UK have incorporated the ‘sandwich’ professional training year as work-based learning in their undergraduate programmes. Although engineering and technology are the most traditional areas, work placements have been introduced across a wide range of subject areas, including economics (HEFCE (2009)). **The industrial placement schemes can be instrumental in the current HE environment, where student degree enrolments are following an upward trend. Specifically, first-year UK HE enrolments and degree qualifications obtained have increased by 22% and 25%, respectively, between 2006/07 and 2015/16 (HESA (2017)). Consequently, the supply of graduates is rising, and the labour market is becoming more competitive. Despite the upward trend in graduate enrolments and degree qualifications, there is evidence that graduates lack ‘employability’ skills; not only subject-specific knowledge, but also softer skills like effective communication and an ability to work in a team. The UKCES Employer Skills Survey 2015¹ presents evidence that skill-shortage vacancies present a growing challenge for employers due to the lack of skills related to operational aspects of the role and soft skills like time management. In the field of economics, employers frequently mentioned a need for development in the application of economic theory and improvements in soft skills like communication². Industrial placements can contribute to close the gap between degree qualifications and employability skills, since students on placements tend to acquire not only specific job skills but also transferable skills. We believe that the placement schemes fit in particularly well within this context, because they offer opportunities for students to demonstrate their competencies and potential at a professional level and, therefore, enhance their employability prospects.**

The benefits of a year’s work experience while studying are considerable. Firstly, students are given the opportunity to enhance their professional profile, hence increasing the likelihood of securing a job offer as graduates as well as boosting their career progression at a later stage (Moores and Reddy (2012)). Secondly, the work experience can increase

¹ Available at <https://www.gov.uk/government/publications/ukces-employer-skills-survey-2015-uk-report>

² Economics Network Research: Employers’ Survey 2014-15. Available at <https://www.economicsnetwork.ac.uk/projects/surveys/employers14-15>

students' motivation to work harder in the final year as well as build up their soft skills, such as time-keeping and working to deadlines (A. Mandilaras (2004)).

The University of Surrey has been implementing an optional Professional Training Year (PTY) scheme, which offers students an opportunity to do a placement year upon completion of their level 2 studies. Students who are not interested in the PTY option enroll in the three-year programme; on the other hand, those who are interested in acquiring work experience or can enroll in the four-year programme. **Students usually search for a job (either using the University's virtual learning environment or self-source jobs) from the beginning of their second undergraduate year and continue to do so until the end of their second year. The University of Surrey provides support to students through the employability and career centre (e.g. careers fairs, job application and preparation for assessment centres) as well as from the School of Economics with tailored advice and guidance for economic students. Although students receive support from the University, a placement is not guaranteed; that is, from those students who search for a job some of them do not obtain a placement. As we will report later, from those students who searched for a job in our sample 72% found a placement year while the other 28% did not.** The students who are successful in their search, do their placement in the third year and then return to the university for the final (fourth) year of their programme. In contrast, those students who search but are not able to find a placement during their second year proceed directly to their final (third) year of studies. This latter group joins those students who did not opt into the placement year (i.e. did not search for a job during year two).

So far, the literature on HE has largely focused on whether a sandwich placement year affects students' degree performance (see Figure 1) by comparing the group of students who go on placement with the group of students who do not; therefore the control group is those students who choose not to go on placement. A. Mandilaras (2004) is one of the first studies to provide evidence of a positive effect of a placement year on the students' degree classification for a sample of economics students at the University of Surrey. For example, doing a placement increases the likelihood of achieving an upper-second-class degree by 30%.³ Furthermore, Mandilaras' results are corroborated by Gomez et al. (2004) and Green

³Mandilaras' sample is very similar to the one used by this study. For example, Mandilaras states that

(2011). Specifically, Gomez et al. (2004) utilise a sample of biosciences students at the University of the West of England. They find a statistically significant and positive effect of placement experience on final-year academic performance also controlling for a measure of student attainment at pre-university level, the Higher Education Statistics Agency (HESA) score. Green (2011) uses a sample of business graduates at the University of Ulster to show the positive association between placement year and final-year mark. Crawford and Wang (2015) examine the impact of placement on academic performance for a sample of students enrolled in a business programme of a UK university. They primarily focus on Chinese students and their results show that the probability of achieving a good degree (2.1 degree classification or above) is seven times higher for students who opt to do a placement than Chinese students who do a three-year programme. The same comparison for UK students indicates a 12-times higher probability for placement students.⁴

Jones et al. (2017) also study the effect of placement on degree performance but they use a large sample of students from two UK institutions, Aston University and Ulster University, and focus on a possible self-selection bias.⁵ They find that although the effect of a placement year on final year marks has been overestimated due to self-selection bias, the positive effect is still present. They employ a two-step method (Propensity Score Matching) to identify the bias, the first step involving a logit model similar to this study's. Specifically, they estimate the probability of a student going on placement controlling for a set of variables including the level 1 average mark. However, surprisingly, their specification also includes the students' average second-year mark, which is found to be statistically significant and with a positive effect, while the first-year average

86.7% of the students who did a placement are British, which is very close to this study's 81%. Moreover, he finds that about 60% of graduates are male, which is, again, very close to the number of male students in our sample, 67%. However, there are important differences, such as that the School of Economics back then offered only two programmes, while, now, it offers three programmes along with foundation year and joint degrees.

⁴Also Duignan (2002) and Mansfield (2011) conduct similar studies, using alternative statistical techniques, namely, F-tests and ANCOVA.

⁵The self-selection bias hypothesis suggests that students who manage to go on a placement year do not do better due to the skills they have acquired from their working experience, but rather because they are inherently better than the students who did not do a placement.

is found to be insignificant. As explained later on, we argue that controlling for the second-year average would not be relevant in our case, because the prospective employers cannot have this information by the time they decide whether to offer or not a placement position, since students start applying for and secure placements before the end of the second academic year.

The literature has therefore widely explored the channel that links the sandwich placement year and academic performance. In contrast, this paper considers the time frame before the placement year and examines whether the likelihood of securing a placement year and prior academic performance are causally linked (see Figure 1). Although this relationship has been overlooked by the literature, the possible effect of first-year academic performance on PTY can bring evidence of placement opportunity being a major motivation for students to improve their academic performance. In particular, as a major hypothesis that the first-year average mark may be a significant determinant of this possibility is crucial for the UK HE framework. In most UK universities the first year does not contribute towards degree classification, or carries a very low weight. This is designed to allow students to familiarise themselves with the new environment and prepare them for the more challenging second and third year. However, first-year modules are the basis upon which forthcoming modules build on and, as we will show, performance across these modules affects the likelihood of securing a placement. Hence, it is important to identify the relevant factors for professional development at an initial stage to enhance the student learning experience.

Figure 1: The undergraduate (UG) programme and the explored and unexplored associations.

Indeed, this paper studies the relationship between student academic performance and the probability of doing a placement year. We focus on those students who search for a job

during their second year of studies to analyse whether, and to what extent, their first-year academic performance determines the rate of success in securing a placement year (see Figure 1). We use two cohorts of students from the School of Economics, University of Surrey – those who started their course in 2012-13 and those who started in 2013-14 – to estimate the probability of securing a placement year controlling for the student's average of first-year marks, and other potential determinants such as gender, age, fee status, ethnic group, and type of programme of study.

By using a logit model we find that a high first-year average mark does increase the chances of securing a placement year. The mean predicted probability of obtaining a placement position is approximately 50% if a student's average first-year grade is 50, and this probability rises to 67% and 80% if the student achieves an average first-year grade of 60 and 70, respectively. **When looking at different sub-groups of students, we find that the probability of securing a placement year is higher for female students than for male students. Notably, a female student with an average first-year grade of 60 has 75% chances of securing a placement versus 62% chances of securing a placement for a male with the same first-year grade.** The probability of securing a placement is significantly higher for UK students, while it is notably lower for Asian students. Moreover, students studying towards the Economics and Finance BSc or the Business Economics BSc are more likely to secure a placement than the Economics BSc students.

We then extend the analysis to study the possible effect of school background and students' performance before their undergraduate studies on the chances of securing a placement. For this purpose, we include information on students' school type and mathematics and economics grades at A-level, which reduces the number of observations because most of the international students included in our sample did not take A-level. We find that school type and A-level grades do not seem to play any role in securing a placement. This result, together with the positive impact of first-year marks, is important because it shows that students with a relatively weaker performance at A-level can still have significantly good chances of securing work experience if they achieve high grades in their first undergraduate year.

To the best of our knowledge, this is the first paper to provide a robust estimation of the effect of academic performance on the probability of securing a placement year

during undergraduate studies. This paper contributes not only to the discussion of this type of effect, but it is also novel in the sampling and quantification procedure because *our control group is formed by those students who searched for a placement but were unsuccessful in finding one*. Thus, we believe that our methodology is able to capture the students' intention to find a placement year and use it to accurately estimate the aforementioned effect.

In the next section we discuss the methodology and data. Section 3 presents the results of the econometric analysis and section 4 discusses the implications of our results. Finally, section 5 concludes the paper.

2 Methodology and Data

To study the effect of student academic performance on securing a placement while studying for undergraduate degree, our analysis is based on the students' *intention* to find a placement. For this purpose, we focus on those students who search for a job during their second year of studies and analyse whether, and to what extent, the students' first-year academic performance determines the rate of success in securing a job.⁶

We follow a discrete choice model (Greene (2008)) to statistically relate the students' success (or not) in securing a placement to the attributes of the student. The response variable is a dummy, **PTY**, which takes the value of 1 if the student searched and secured a placement, or 0 if the student searched but did not secure a placement. In other words, the student's participation in the PTY programme is statistically related to the student's first-year academic performance and other determinants such as gender, age and type of programme of studies (each of these are control variables, see below), which can be

⁶Students are allowed to change from the three-year programme to the 'sandwich' programme, and vice versa, any time from the beginning of the first year until the end of the second year. Students might have different reasons to change programme, but relevant to our study is that students can decide to do so at the end of the first year once they know their first-year average. A student enrolled in the sandwich programme might switch to the three-year programme because of low average first-year marks. Alternatively, a student enrolled in the three-year programme might switch to the sandwich programme because of high average first-year marks. These possible cases raise an issue of potential selection bias. However, despite the fact that we know the number of students who switched programmes in their first year by the beginning of the second year, we do not know exactly when the students made this decision. Besides, the majority of the students in our sample (about 76%) did not switch.

formalised with the following Logit model:

$$P(\text{PTY} = 1|\mathbf{x}) = \Lambda(\beta_0 + \mathbf{x}\boldsymbol{\beta}) = \frac{\exp(\beta_0 + \mathbf{x}\boldsymbol{\beta})}{1 + \exp(\beta_0 + \mathbf{x}\boldsymbol{\beta})}, \quad (1)$$

where $P(\text{PTY} = 1|\mathbf{x})$ is the probability that a student is successful in finding a placement given the set of control variables and Λ is the logistic cumulative distribution function.⁷ The model will also be used to predict how a student's participation in the PTY will change under changes in the variables that affect such participation (e.g. first-year academic performance).

We use the student's average of **first-year marks** as an indicator of academic performance. We focus on first-year results, because students start applying for placements at the beginning of the second year. Naturally, the second-year marks are not available at this stage. A relevant feature is that all the first-year modules are compulsory to the students of the programmes this study considers. Given similar characteristics, we would expect that a student with relatively high first-year marks has higher chances of securing a placement than a student with low marks. We include information on students' **age** at course entry and **gender**, which is defined as a dummy variable equal to 1 for female and 0 for male. The other control variables are the following:

- Students are classified according to their **fee status**: home student (UK), home student (EU) or Overseas, with indicator of 1 for UK students and 0 if EU or Overseas.
- To capture ethnic heterogeneity among students we use students' self-reported ethnicity, which is registered at the course enrolment stage in the first year (students classify themselves into one of the categories listed in the University form). For simplicity, we use dummy variables: **ethnic (white)** is equal to 1 if the student is 'White' and 0 otherwise, **ethnic (Asian)** is equal to 1 if the student is 'Asian' and 0 otherwise, and **ethnic (Other)** is equal to 1 for any other ethnicity.⁸
- Students are enrolled in three programmes: Economics BSc, Business Economics BSc and Economics and Finance BSc. International students may take the 'international

⁷Qualitatively, the results reported in this paper are the same with the alternative Probit and Cloglog models.

⁸The 'White' category includes combinations of ethnic groups like 'White-Brazilian'. We apply the same rule to the 'Asian' category. This adjustment allows us to create a more comprehensive predictor with sizeable categories.

foundation year', which provides subject knowledge, language proficiency and study skills to progress to degree study. For simplicity and easier interpretation, we use dummy variables for each programme: **programme (E)** equal to 1 if the student enrolled in the Economics BSc and 0 otherwise, **programme (BE)** equal to 1 if the student enrolled in the Business Economics BSc and 0 otherwise, and **programme (EF)** equal to 1 if the student enrolled in the Economic and Finance BSc and 0 otherwise. Those few students who enrolled in the international foundation year (only about 5%) are included in the respective programmes. Since all economics students have access to the same job list on the School's website, a student from any of the BSc programmes should have the same chances of securing a placement, *ceteris paribus*.

- To capture a possible effect of the school type on the probability of securing a placement, the variable **school (Academy)** takes the value of 1 if the student attended an academy and 0 otherwise, **school (Grammar/Independent)** is equal to 1 if attended a grammar or independent school and 0 otherwise, and **school (Other)** is equal to 1 if attended a sixth-form or tertiary college.
- Prior study of mathematics and economics at A-level can affect the possibility of securing a placement if employers consider these qualifications as criteria to select job candidates. We created the variables **A-level Maths** and **A-level Econ**: a score of A or A* as equal to 1, a score of B as equal to 2 and a score of C or D as equal to 3.

Our data is comprised of two cohorts of students; those who started their course in 2012-13 and those who started in 2013-14. Since students have to actively look for a placement, our sample includes only students enrolled in the 'sandwich' programme at the beginning of their *second* year of studies. The timing of students' enrolment is crucial to avoid potential bias; that is, including students enrolled in the sandwich programme at the beginning of second year minimises the chances of including students who change programme at the end of their first year. Therefore the sample consists of 221 second-year students who searched for a placement either in 2013-14 (76 students from the first cohort) or in 2014-15 (145 students from the second cohort).

Table 1 reports the main characteristics of our sample and groups of students, distin-

guishing by those who did a placement year (PTY=1) versus those who did not (PTY=0). Notice that 72% of the students in our sample searched for and found a placement (the other 28% searched for but did not find a placement) and the average first-year mark was 67.8. More relevant to our study, those students who secured a placement had an average of 68.8 first-year mark versus 65.2 for those students who could not secure a placement position. Some other characteristics of the sample are: 60% of the students classified themselves as ‘White’ and 25% as ‘Asian’; most of the students chose the Economics BSc programme (55%), with second place held by Economic and Finance BSc (37%), followed by Business Economics BSc (9%). Our sample has predominantly male students (67%); with 81% of the students under home (UK) fees. Additional information on other descriptive statistics of our sample is available in Table 4 in the Appendix. **Students reported relatively lower scores in A-level Maths compared to A-level Economics: while almost 62% of students reported an A or A* in economics less than 50% of students received an A or A* in mathematics. Additional information on the A-level scores distribution is available in Table 5 in the Appendix. More relevant to our study is the fact that the mean of A-level Maths and the mean of A-level Economics for those students who did the PTY are very similar for those who did not.**

Next, we present our results with regards to the relationship between placement, first-year academic performance, gender, age, fee status, ethnic and program, therefore utilising our full sample of observations. We then proceed to study the possible effect of school type and A-level variables on the chances of securing a placement with a reduced number of observations.

3 Results

The results are reported in Table 2. Let’s focus first on the econometric results of those models with the full sample, Model 1 and 2. We have also estimated alternative models by adding to Model 1 the variables gender, age, fee status and ethnicity. The results of these alternative models are reported in Table 6 in the Appendix. We find that our key variable of interest (first-year average mark) has a positive and statistically significant effect on placement across all mod-

Table 1: Sample and groups characteristics

Variable	Sample Mean	PTY = 1		PTY = 0	
		Obs	Mean	Obs	Mean
PTY	72%				
First-year mark	67.8	160	68.8	61	65.2
Gender (Female)	33%	160	36%	61	28%
Age	18	160	18	61	19
Fee status					
UK	81%	145	91%	34	56%
EU and Overseas	19%	15	9%	27	44%
Ethnic					
White	60%	107	67%	25	41%
Asian	25%	30	19%	25	41%
Other	15%	23	14%	11	18%
Programme					
Economics BSc	55%	85	53%	36	59%
Business Economics BSc	9%	16	10%	3	5%
Economics and Finance BSc	37%	59	37%	22	36%
School					
Academy	44%	63	46%	11	34%
Grammar/Independent	12%	16	12%	5	16%
Other	44%	58	42%	16	50%
A-level Maths	1.6	130	1.6	34	1.7
A-level Econ	1.4	122	1.4	33	1.4

els. Remarkably, first-year average mark is relatively robust to the inclusion of predictors, with the estimated coefficient ranging from 0.055 to 0.069. Additionally, the statistics reported (log likelihood and χ^2) show that the model's fit improves as more explanatory variables are added to our specification.

Besides first-year performance, other variables appear to affect the probability of securing a placement. The probability is significantly higher for UK students, while, it is notably lower for Asian students. Moreover, students studying towards the Economics and Finance BSc or the Business Economics BSc are more likely to secure a placement than the Economics BSc students. Gender and age, however, do not show similarly statistically significant effects. Specifically, age is not significant and gender is significant but only in

Table 2: Results

Response variable: PTY = 1 (probability of securing a placement)

Predictor	Model 1	Model 2	Model 3	Model 4	Model 5
First-year mark	0.055*** (0.020)	0.069*** (0.023)	0.097*** (0.027)	0.126*** (0.034)	0.094*** (0.036)
Gender (F)		0.812** (0.421)	0.723 (0.530)	0.816 (0.626)	0.938 (0.624)
Age		-0.153 (0.231)	-0.490 (0.373)	-0.384 (0.539)	-0.241 (0.468)
Fee status (UK)		2.212*** (0.513)	-0.177 (1.128)	0.047 (2.036)	-0.401 (1.261)
Ethnic (Asian)		-0.941** (0.420)	-1.572*** (0.545)	-2.038*** (0.629)	-1.539*** (0.574)
Ethnic (Other)		-0.807 (0.545)	-1.467*** (0.554)	-1.921*** (0.616)	-1.679*** (0.670)
Programme (BE)		1.327* (0.732)	1.008 (0.807)	0.965 (0.948)	0.365 (0.911)
Programme (EF)		0.972** (0.455)	1.109** (0.563)	1.203** (0.627)	0.986 (0.647)
School (Grammar/Independent)			-0.839 (0.650)	-0.337 (0.755)	-0.992 (0.729)
School (Other)			-0.478 (0.502)	-0.320 (0.542)	-0.254 (0.516)
A-level Econ				0.769 (0.475)	
A-level Maths					-0.33 (0.441)
Observations	221	221	169	142	148
Log likelihood	-125.8	-101.9	-65.9	-54.2	-55.6
χ^2	7.8	43.9	38.0	39.7	31.1
χ^2 (Prob.)	0.003	0.000	0.000	0.000	0.006

Notes: All regressions were run using the logit model. Robust standard errors are displayed in parentheses under the coefficient estimates. * denotes that the test-statistic is significant at the 10% level; ** significant at the 5% level; *** significant at the 1% level.

two out of five models in which it is included. In these cases, the association is positive suggesting that female students are more likely to do a placement than male students.⁹

Further elaborating on the results, we will put some of them into perspective. Since Model 2 appears to have the best fit and, at the same time, it is the most inclusive with regard to the number of predictors, we use this model to predict how student's participation in the PTY is affected under changes in the variables that affect such participation. If we look at the marginal effects *at the mean* of the exogenous variables, we find that a one unit increase in the average first-year mark is predicted to increase the odds of securing a placement year by a factor of 1.07. We also find that the odds of securing a placement offer is approximately 9 times higher for a UK student compared with an EU or overseas student; the likelihood is 2.6 times higher for a student of the Economics and Finance BSc than a student of the Economics BSc; and that a non-Asian student has 2.6 times higher chances to do a placement than an Asian student. Given the characteristics of our predictors, we now focus on the marginal effects *at representative values* of our predictors and *across sub-groups* of students. Table 3 reports the predicted probability of obtaining a placement position for three different possible first-year marks. The mean predicted probability of obtaining a placement position is approximately 50% if a student's average first-year grade is 50 and this rises to 67% and 80% if the student achieves an average of 60 and 70, respectively. By looking at different sub-groups of students, it is interesting that the probability of securing a placement year is higher for female students than for male students. In particular, a female student with an average first-year grade of 60 has 75% chances of securing a placement versus 62% chances of securing a placement for a male with the same first-year grade. In addition, those students under UK fee status have a relative high chances of securing a placement compare to non-UK students. Finally, it seems that Asian students are in a disadvantaged position compared not only to 'White' students but also to other minority ethnic groups.

⁹Based on Model 2 we made two extensions; first, we included an interaction term between ethnicity and fee status; second, to check whether there are differences between the two cohorts of students we included a dummy variable. The estimated coefficient of the interaction term and the dummy cohort were statistically insignificant. Evidence is available from the authors on request.

Table 3: Mean predicted probability of PTY=1

First-year mark	At means	Gender sub-groups		Fee status sub-groups		Ethnic sub-groups		
		Male	Female	UK	Non-UK	White	Asian	Other
50	0.50	0.45	0.60	0.61(a)	0.13	0.62	0.28	0.43
60	0.67	0.62	0.75	0.75	0.23	0.76	0.43	0.60
70	0.80	0.77	0.85	0.86	0.37	0.86	0.60	0.75

Notes: All the estimated marginal effects reported in this table are statistically significant at 1% level, except for (a) which is statistically significant at 5% level.

We now describe the econometric results of the analysis on whether school type and A-level grades can affect the chances of securing a placement. Since not all the information of those variables is available for the full sample and to include as many observations as possible we proceeded as follows. We added to Model 2 the two school variables (Model 3), then we added to Model 2 both the school and A-level Econ variables (Model 4), and, finally, we added to Model 2 both school and A-level Maths variables (Model 5). In all these additional models the associated coefficients of school and A-level scores are *not* statistically significant; therefore, school type and A-levels in maths or economics play no role in securing a placement. Age, gender and fee status are not statistically significant.¹⁰ On the other hand, first-year marks, ethnic groups and being enrolled in the Economic and Finance programme affect the probability of securing a placement.

4 Discussion

Our findings show that the variable this study investigates is unambiguously significant. Specifically, first-year academic performance positively affects the likelihood of securing a placement. Understandably, placement recruiters place substantial weight on students' academic performance as they seek out the best possible employees, in spite of the position's temporary nature. This result is also interesting in the HE context, because it relates the students' first-year learning experience with further professional development and the overall grade. In particular, our evidence together with the literature suggesting that a placement year increases the third-year grade indicates that a high first-year average also

¹⁰Fee status is not significant because most of the students included in the estimations of the extended models are UK students.

increases the chances of getting a better degree.

Furthermore, UK students are dramatically more likely to secure a placement. This is not surprising since 81% of the students enrolled in the sandwich programme are UK nationals (Table 1). There are also other possible explanations for this result. First, UK students might be more motivated to look for and secure a placement than EU or international students, because they are more likely to wish to be absorbed by the UK labour market. Conversely, EU or overseas students are likely to return to their home countries to apply for graduate positions.¹¹ Second, although any student can apply for a placement, in practice there might be visa restrictions which can make the job-finding process harder for international students compared to home students. Third, UK students might be more familiar with the job-search process, for instance due to relatives' or friends' work experiences in the UK, than international students. Fourth, international students might also face language issues; that is, these students may struggle to communicate well during job interviews in comparison with UK students. Therefore, not only UK students can be more motivated to find a work experience in the UK but international students might face both visa limitations and language barriers that can act as a considerable deterrent to secure a placement.

Asian students seem to have considerably lower chances of securing a placement. One might be inclined to suggest that this finding is worrying and suggests discriminatory issues. Nevertheless, a careful look at our sample should largely dispel these concerns. The sample includes 55 Asian students who were enrolled in the sandwich programme. More than half of these students did a placement year, but only about 23% of them were non-UK. Examining the part of the Asian students who did not manage to secure a placement, we see that the majority (56%) were also non-UK. The statistics, then, indicate that the lower likelihood that Asian students face can possibly be attributed to more objective issues, like linguistic barriers. Further, as explained above, non-UK students are not expected to be equally motivated as UK students to look for a placement, despite the fact that they are enrolled in the relevant programme.

Students of the Economics and Finance BSc and of the Business Economics BSc appear to have an advantage over students of the Economics BSc. As mentioned in section 2, most

¹¹Therefore, there is significant heterogeneity across students in terms of enthusiasm and motivation to secure a placement offer, however, this is an unobservable variable.

students prefer the latter programme; this may be driven by the belief that it will make them more employable. However, our findings show the opposite. One possible explanation is that most of the students enrolled in the Economics and Finance BSc aim for and are employed by the City's banking and financial industry, hence, such a degree is more aligned to the needs of this part of the labour market. Another argument that applies to both programmes is that a 'combined-subject' degree offers more all-round knowledge and, thus, flexibility when applying for placements.

Although gender was tentatively significant, it is not clear to us why female students might have better chances of securing a placement. Age showed no effect on the chances of securing a placement, a result that can be due to limited variability of age (about 76% of the students were 18 years old and 17% were 19 years old when they first registered at the University).

Furthermore, our findings showed that neither school type nor A-level grades affect the likelihood of securing a placement year. We think this is an interesting result. In the current education debate on whether academies provide better education compared to non-academy schools¹², our results are interesting because they show no conclusive evidence in favour of academies over non-academy schools. In our context, if employers believed that academies provide students with better academic skills we would expect that students who attended academies and included such information in their curriculum vitae (CV) have higher chances of securing placements compared to students who did not, *ceteris paribus*. The estimated coefficients associated with different types of schools in models 3 to 5 (Table 2) show the expected sign (negative for non-academy) but they are not statistically significant. This result implies that attending an academy provides no advantage in securing a placement compared to other types of schools. Regarding A-level, although this information is an important requirement to enter a university course, it does not seem to affect students' chances of getting a placement. Instead, the first-year mark is now the relevant competency proxy. To further explore this result we used information from those students who completed a placement year. These students were required to submit

¹²The Learning and Skills Act 2000 created 'academies' (independent, state-funded schools, which receive their funding directly from central government) with the aim to replace poorly-performing secondary schools. Although the Government annual report on academies performance (2015), available at www.gov.uk/government/publications, stated that converted academies performed better against the Ofsted framework, Worth (2014) suggests that academy status has made little difference to the progress made by pupils in converted academies compared to pupils in similar non-academy schools.

their CVs at the end of the placement year. From the 2012-13 cohort, 54 did a placement year of which 52 included type of school information and 53 A-level results in their CVs. From the 2013-14 cohort, 106 did a placement year of which 96 included type of school information and 92 A-level results. Theoretically speaking then, this sort of background information should have some explanatory power in our model, yet, in practice this is not true. Therefore, what is relevant in this context is the average first-year mark. We interpret this as a positive result because students with ‘weaker’ backgrounds or ‘poorer’ secondary education performance can still have significant chances to secure a placement offer if they work hard to achieve good grades in their first undergraduate year.

However, we need to acknowledge two caveats in our reasoning. First, we could not access the CVs of students who were unsuccessful in finding a placement ($PTY=0$). Nevertheless, since all students enrolled in the sandwich programme received the same support during the job-search process (e.g. lectures, workshops and career services), it is reasonable to expect that the majority of them also included information about their school and A-level in their CVs. Second, although there are differences between the CV submitted during the job application process and the CV submitted by the end of the placement year, these are primarily due to the additional work experience. Despite the aforementioned limitations then, we think that the information on school and A-level were part of most CVs and our analysis still holds.

We believe that this is the first paper to provide a robust estimation of the quantitative effect of academic performance on the probability of securing a year’s work experience during undergraduate studies. Although Jones et al. (2017) find in their first stage of analysis that first-year marks do not affect the probability of placement and that second-year marks have a significant and positive effect on placement, there are two crucial differences with our study. First, their sample includes all students that have the option to go on a work placement or not, so their control group is formed by the students who choose not to go on placement. In our study, the control group is formed by the students who looked for a placement but were not successful in finding one. We believe that our comparison is legitimate, because both groups of students ($PTY=1$ and $PTY=0$) have the intention of going on placement. Second, since all the first-year modules are compulsory to students at the School of Economics (University of Surrey), both groups of students are directly

comparable because they undertake the same examinations.¹³

5 Conclusion

This paper presents evidence on the relationship between first year academic performance and subsequent placement likelihood based on a sample of students from the School of Economics at the University of Surrey. The main finding is that the first-year average grade positively affects the chances of securing a placement. Indeed, the mean predicted probability of obtaining a placement position is approximately 50% if a student's average first-year grade is 50, and this probability rises to 67% and 80% if the student achieves an average first-year grade of 60 and 70, respectively. This result implies that although first-year grades are not relevant for the overall degree, students' effort during the first year increases the probability of securing a placement year. According to the literature, a placement year increases the third-year grade, so a high first-year average also increases the probability of getting a better degree. Another interesting finding is that school type, in particular attending an academy school, and A-level grades play no role in securing a placement. This result, together with the positive impact of first-year marks, is interesting because it shows that, effectively, all students, irrespective of their former educational background and performance, have significant chances of securing a placement year, if they work hard to achieve good grades in their first undergraduate year.

We acknowledge that this study has limitations. First, although the results are pertinent to HE, they cannot be generalised because the sample of economics students at Surrey is not representative of all the academic disciplines and the entire country. **Second, our results could be biased due to additional factors that can affect the probability of securing a placement year which we were included in the econometric analysis since we do not have such information.** For instance, employers admittedly choose job candidates not only based on academic performance, but also based on other soft skills such as teamwork and communication. Another possibility is that the probability of securing a placement year can also depend on the support provided by the University during the job application process. **Any improvement from the University to help students on their job application, for**

¹³In Jones et al. (2017) not all students participated in the same examinations.

example employer presentations or mock interviews, is expected to increase the chances of securing a placement. Nonetheless, it is difficult to capture the quality of support provided by the University in econometric analysis.

However, the study of the relationship between students' academic performance and undergraduate work experience is a promising field of research. This relationship is important because it relates the students' undergraduate first-year experience with further professional development. Progress on this area should include other subject areas and additional soft skills which are relevant for the job-search process. **Finally, future research could explore the relationship between the quality of support offered by universities and the chances of securing a placement. One possibility would be to collect information on the different sources of support provided by Universities and compare students who receive support with students without support.**

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Appendix

Table 4: Descriptive statistics of the sample

Variable	Number of Observations	Mean	Standard Deviation	Min	Max
PTY	221	0.72	0.45	0	1
First-year mark	221	67.81	8.24	43	86
Gender	221	0.33	0.47	0	1
Age	221	18	0.91	17	27
Fee status	221	0.81	0.39	0	1
Ethnic (White)	221	0.60	0.49	0	1
Ethnic (Asian)	221	0.25	0.43	0	1
Ethnic (Other)	221	0.15	0.36	0	1
Program (E)	221	0.55	0.50	0	1
Program (BE)	221	0.09	0.28	0	1
Program (EF)	221	0.37	0.48	0	1
School (Academy)	169	0.44	0.50	0	1
School (Grammar/Independent)	169	0.12	0.33	0	1
School (Other)	169	0.44	0.50	0	1
A-level Maths	164	1.60	0.64	1	3
A-level Econ	155	1.43	0.58	1	3

Table 5: A-level scores distribution

Score	A-level Maths		A-level Economics	
	Frequency	Percentage	Frequency	Percentage
A or A*	80	48.8	96	61.9
B	70	42.7	52	33.5
C or D	14	8.5	7.0	4.5
Total	164	100.0	155	100.0

Table 6: Results of alternative models with full sample

Response variable: PTY = 1 (probability of securing a placement)

Predictor	Model 6	Model 7	Model 8	Model 9
First-year mark	0.056*** (0.020)	0.051** (0.021)	0.061*** (0.021)	0.058*** (0.023)
Gender (F)	0.378 (0.343)	0.344 (0.353)	0.568 (0.389)	0.690* (0.400)
Age		-0.317 (0.203)	-0.143 (0.253)	-0.136 (0.210)
Fee status (UK)			2.133*** (0.400)	1.910*** (0.448)
Ethnic (Asian)				-0.909** (0.410)
Ethnic (Other)				-0.591 (0.532)
Observations	221	221	221	221
Log likelihood	-125.2	-123.4	-108.3	-105.7
χ^2	8.1	9.2	35.2	44.8
χ^2 (Prob.)	0.006	0.003	0.000	0.000

Notes: All regressions were run using the logit model. Robust standard errors are displayed in parentheses under the coefficient estimates. * denotes that the test-statistic is significant at the 10% level; ** significant at the 5% level; *** significant at the 1% level.