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STUDENT ACADEMIC PERFORMANCE AND PROFESSIONAL TRAINING YEAR

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Student academic performance and professional training year*

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Abstract

This paper studies the relationship between students' academic performance and work experience during 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 related to 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 of 60 and 70, respectively. Other relevant factors that affect the likelihood of securing a placement are the type of programme of studies, the student's nationality and ethnic group. On the other hand, school type and A-levels scores in mathematics or in economics have *no* effect on the chances of securing a placement year.

Keywords: Academic performance; placement; employability; economics.

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1 Introduction

Many higher education 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 (Higher Education Funding Council for England [2009]). 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 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 (Mandilaras [2004]).

The University of Surrey has been implementing an optional Professional Training Year (PTY) scheme, which provides students the 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 acquiring work experience enroll in the four-year programme. Students usually search for a job (either using the University's website or self-source jobs) from the beginning of their second undergraduate year. They receive support during their job search process, but a placement is not guaranteed. 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. On the contrary, 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 are not interested in the PTY option (i.e. do not search for a job during year two).

So far, the literature on Higher Education (HE) has largely focused on whether a sandwich placement year affects the 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. 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 to achieve an upper-

second-class degree by 30%.[1] Furthermore, Mandilaras' results are corroborated by Gomez et al. [2004] and Green [2011] who use samples of bioscience and business graduates. Similarly, Crawford and Wang [2015] focus on Chinese students and find that the possibility to achieve a 2.1 or above is higher for students who opt to do a placement.[2] Recently, Jones et al. [2015] find that the positive effect of a placement year on final year marks has been overestimated due to self-selection bias, however, despite being lower, it is still present.[3]

Therefore, the literature has adequately 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. Particularly, the hypothesis that the average first-year mark may be a significant determinant of this possibility is crucial for the UK HE framework. The undergraduate programmes across the UK do not count the first-year performance towards the degree grade. This allows students that enter HE 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 courses build on and, as we will show, affect 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.

[1] Mandilaras' sample is very similar to the one used by this study. For example, Mandilaras states that 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 interdisciplinary degrees.

[2] Also Duignan [2002] and Mansfield [2011] conduct similar studies, using alternative statistical techniques, namely, F-tests and ANCOVA.

[3] The 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.

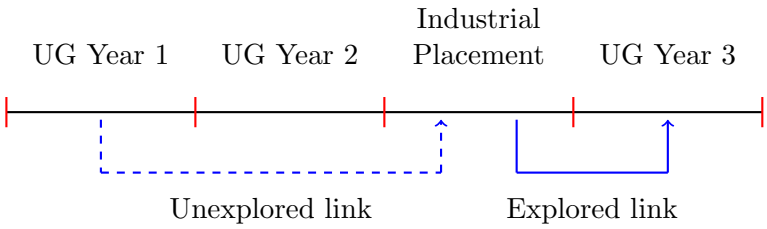

Figure 1: The undergraduate (UG) programme and the explored and unexplored associations.

Indeed, this paper studies the relationship between student academic performance and the possibility of doing a placement. 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 an industrial placement (see Figure 1).[4] 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 studies.

We find that a high average in the first-year marks does increase the chances of securing a placement year. Importantly, this result is consistent across different models. 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 of 60 and 70, respectively. 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. Gender and age, however, fail to show equally statistically significant effects.

We then extend the analysis to study the possible effect of school type and mathematics and economics scores at A-levels on the chances of securing a placement (with a reduced number of observations, because most of the international students included in our sample

[4] We use the terms 'work experience', 'placement' and 'industrial placement' interchangeably throughout the paper.

did not take A-levels). We find that school type and A-level scores 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 'weaker' backgrounds or 'poor' secondary education performance 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 an industrial placement 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 we analyse whether and to what extent the students' first-year academic performance determines the rate of success in securing a job.[5]

[5]Students 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.

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 formalised with the following Logit model:

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

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.[6] 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 social background 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

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

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.[7]

- Students are enrolled in three programmes: Economics BSc, Business Economics BSc and Economics and Finance BSc. International students may take the 'international 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: **program (E)** equal to 1 if the student enrolled in the Economics BSc and 0 otherwise, **program (BE)** equal to 1 if the student enrolled in the Business Economics BSc and 0 otherwise, and **program (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 (the School of Economics supports students during their job-searching process,

[7] The '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.

but a placement is *not* guaranteed), 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 shows the main characteristics of our sample and groups of students, distinguishing 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%), while the second place holds the Economic and Finance BSc (37%) which is followed by the Business Economics BSc (9%); with predominantly male students (67%); with 81% of the students under home (UK) fees; and with relatively higher scores in A-level Maths compared to A-level Economics. Additional information on other descriptive statistics of our sample is available in Table 3 in the Appendix.

Next, we present our results with regard 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.

Table 1: Sample and groups characteristics

Variable	Sample	PTY = 1		PTY = 0	
	Mean	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

3 Results

The results are reported in Table 2. Let's focus first on the econometric results using the full sample of observations, which are in Model 1 to Model 6. Our key variable of interest is the average first-year mark and, as can be seen, its coefficient is positive and statistically significant across all models. Remarkably, its significance level is never above 1%, except in model 3. Similarly, it appears relatively robust to the inclusion of predictors ranging from 0.055 to 0.069. Additionally, the statistics reported show that the model's fit improves as more explanatory variables are added to our especification.

Table 2: Results

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

Predictor	**Model 1**	**Model 2**	**Model 3**	**Model 4**	**Model 5**	**Model 6**	**Model 7**	**Model 8**	**Model 9**
First-year mark	0.055***	0.056***	0.051**	0.061***	0.058***	0.069***	0.097***	0.126***	0.094***
	(0.020)	(0.020)	(0.021)	(0.021)	(0.023)	(0.023)	(0.027)	(0.034)	(0.036)
Gender (F)		0.378	0.344	0.568	0.690*	0.812**	0.723	0.816	0.938
		(0.343)	(0.353)	(0.389)	(0.400)	(0.421)	(0.530)	(0.626)	(0.624)
Age			−0.317	−0.143	−0.136	−0.153	−0.490	−0.384	−0.241
			(0.203)	(0.253)	(0.210)	(0.231)	(0.373)	(0.539)	(0.468)
Fee status (UK)				2.133***	1.910***	2.212***	−0.177	0.047	−0.401
				(0.400)	(0.448)	(0.513)	(1.128)	(2.036)	(1.261)
Ethnic (Asian)					−0.909**	−0.941**	−1.572***	−2.038***	-1.539***
					(0.410)	(0.420)	(0.545)	(0.629)	(0.574)
Ethnic (Other)					−0.591	−0.807	−1.467***	−1.921***	−1.679***
					(0.532)	(0.545)	(0.554)	(0.616)	(0.670)
Program (BE)						1.327*	1.008	0.965	0.365
						(0.732)	(0.807)	(0.948)	(0.911)
Program (EF)						0.972**	1.109**	1.203**	0.986
						(0.455)	(0.563)	(0.627)	(0.647)
School (Grammar/Independent)							−0.839	−0.337	−0.992
							(0.650)	(0.755)	(0.729)
School (Other)							−0.478	−0.320	−0.254
							(0.502)	(0.542)	(0.516)
A-level Econ								0.769	
								(0.475)	
A-level Maths									−0.33
									(0.441)
Observations	221	221	221	221	221	221	169	142	148
Log likelihood	−125.8	−125.2	−123.4	−108.3	−105.7	−101.9	−65.9	−54.2	−55.6
χ^2	7.8	8.1	9.2	35.2	44.8	43.9	38.0	39.7	31.1
χ^2(Prob.)	0.003	0.006	0.003	0.000	0.000	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.

Apart from the average 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 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.[8]

Further elaborating on the results, we will put some of them into perspective. Since model 6 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. Particularly, a one unit increase in the average first-year mark is predicted to increase the odds of securing an industrial placement by a factor of 1.07. In addition, 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. Also, the odds of securing a placement offer is approximately 9 times higher for a UK student compared with an EU or overseas student. Additionally, the likelihood is 2.6 times higher for a student of the Economics and Finance BSc than a student of the Economics BSc. Finally, a 'white' student has 2.6 times higher chances to do a placement than an Asian student.

Let's now describe the econometric results of the analysis on whether school type and A-level scores 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 6 the school variable (Model 7), then we added to Model 6 both school and A-level Econ variables (Model 8), and, finally, we added to Model 6 both school and A-level Maths variables (Model 9). In all these additional models the associated coefficients of school and A-level scores are *not*

[8]Based on Model 6 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.

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.[9] 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 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, naturally, most of them will want 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.[10] 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

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

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

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 to do 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 an industrial placement, 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 students prefer the latter programme, maybe 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 to secure 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 scores 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 schools[11], 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 7 to 9 (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-levels, 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 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 CVs of the 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-levels in their CVs. Second, although there are differences between the CV submitted

[11]The 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.

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-levels 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. [2015] 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.[12]

5 Conclusion

This paper presents evidence on the relationship between students' academic performance and 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 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 an industrial placement. 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

[12] In Jones et al. [2015] not all students participated in the same examinations.

school, and A-level scores 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 an industrial placement, 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, employers admittedly choose job candidates not only based on academic performance, but also based on other soft skills, like teamwork and communication, which were not included in the econometric analysis since we do not have such information.

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.

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Appendix

Table 3: 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