Do work placements matter for job quality? The case of economics graduates

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Motivation

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- **Increasing costs** in HE for many undergraduate students.
  - In the UK: ↑ tuition fees cap (£3,375 to £9,000/9,250 in 2012/2017); and maintenance grants → loans in 2016.
  - In Ireland: annual fees of up to €3,000; ↑ living costs.

- Transition from HE to graduate employment is challenging.

  ↪ First jobs can affect **students' employability**.

- The **work placement** provides students with the opportunity to gain a year-long 'trial' of the world of work.
  - ↪ It alleviates students' financial burden → **earnings**.
  - ↪ It enhances employability prospects → **job offers**; **career fit**.

- Study's main objective: Provide evidence of the potential effect of work placements on graduate job quality.

Previous studies have found:

- Compared with non-placement students, placement students:
    - achieve higher final-year grades (e.g. Jones et al., 2015);
    - demonstrate better transferable skills (e.g. Wilton, 2012).
- Regarding graduate earnings, the results are *mixed*:
    - Some studies associate placements with higher earnings upon graduation (e.g. Brooks and Youngson, 2016), while others don't (e.g. Moores and Reddy, 2012; Wilton, 2012).
- Some evidence that placement graduates are more likely to work full-time in an appropriate level graduate role (e.g. Brooks and Youngson, 2016).

- But these studies **do not control for key possible factors**
  that may explain salary/employment differentials.

- Additionally, they **do not address the self-selection issue**.

- This study focuses on economics work placements at the
  University of Surrey.

- In our setting, work placements involve *year-long* (typically, 50
  weeks or more) and *paid* employment.

- We attempt to fill the gap in the literature by:
  - using a rich dataset that includes academic achievement,
    student and job characteristics, and school background;
  - employing regression analysis (OLS, Logit and Matching).

Data: overview

- University's student records: demographic characteristics, educational background, academic achievement, programme enrolments, and work placement participation (PTY).

- DLHE and GO surveys: graduate outcomes and job characteristics.

- Three cohorts of graduates in economics: 2016/17, 2017/18, 2018/19. Total of 557 (approx. 47% did placement).

- Sample size for each graduate outcome depends on the surveys' response rate: 35% to 69%.

Data: variables

- **Response variables**:
  - real earnings: annual graduate salary adjusted by consumer price index.
  - job security: employment contract: whether it is permanent or fixed-term, and full-time or part-time. (4 dummy variables)
  - career fit: the main reason to take up employment was because the job fitted into the graduate's career plan or because it was the type of work the graduate. (dummy variable)

  ↪ six graduate outcomes.

Data: variables

- **Control variables**:
  - work placement participation: $PTY = 1$ if graduate did a placement and 0 otherwise.
  - demographics: gender; age; fee status; ethnicity.
  - degree and academic achievement: programme; average mark in first, second and final year.
  - job characteristics: job location; industrial sectors (economic/finance/banking; technology; professional services; government; accountancy).
  - educational background: type of school (academy; grammar; independent; etc.)
  - cohorts dummies.

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└─ **Methodology**

Because of the different types of response variables, we use two baseline methods:

❶ Effect of work placement on earnings:

Linear regresion model: $ln(w_i) = \alpha + \beta PTY_i + \mathbf{x'_i}\gamma + \mu_i$,

w_i is student i's real salary, PTY_i is a dummy for work placement, $\mathbf{x'_i}$ is a set of covariates, and μ_i is the error term.

❷ Effect of work placement on job security and career fit:

Logit model: probability that the graduate outcome is equal to one given PTY_i and the set of covariates $\mathbf{x'_i}$.

❸ To control for selection-bias: Propensity score matching:

$$\begin{aligned} \text{ATE} &= E[Y(1)] - E[(Y(0)], \text{ and} \\ \text{ATET} &= E[Y(1) | \text{PTY} = 1] - E[Y(0) | \text{PTY} = 1], \end{aligned}$$

ATE is the average treatment effect, and ATET is the average treatment effect on the treated.

- Propensity score $= P[\text{PTY} = 1 | x_1, x_2, \ldots]$.

  It is the probability of a student going on placement conditional on the confounder variables. (Logit)

- We match PTY=1 and PTY=0 students that are close to each other in terms of propensity scores.

  Matching methods: NN-1-to-1, NN-caliper, <u>Kernel</u> and IPW.

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└─Results: effect of work placement on earnings

Placement graduates earn 6% to 8% higher salaries

Controls	OLS			ATE	ATET
	M1	M2	M3		
PTY	0.1017**	0.0920**	0.0806**	0.0682**	0.0724**
	(0.0436)	(0.0414)	(0.0352)	(0.0310)	(0.0305)
Demographics	No	Yes	Yes	Yes	Yes
Educational background	No	Yes	Yes	Yes	Yes
UG degree and academic achievement	No	Yes	Yes	Yes	Yes
Job characteristics	No	No	Yes	Yes	Yes
Cohorts	No	No	Yes	Yes	Yes
Possible selection-bias	No	No	No	Yes	Yes
Observations	196	171	167	173	173
F	5.44	1.65	4.42		
p-value	0.0207	0.0661	0.0000		
R^2	0.0352	0.1581	0.3644		

Note: The table shows the regression coefficients of PTY from the OLS model, the equivalent ATE and ATET estimates, and robust standard errors in parentheses. The response variable is the natural logarithm of real salaries, and ** denotes significance at the 5% level.

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└─ Results: effect of work placement on graduates' job security and career fit

Placement graduates find jobs with better career fit.

Graduate outcome	Logit		ATE	ATET
	PTY	$dy/dx(PTY)$		
Permanent employment				
	0.4844	0.0791	0.078	0.0637
	(0.3947)	(0.0631)	(0.0655)	(0.0703)
	237	237	258	258
Fixed employment				
	-0.8551**	-0.1188**	-0.0965	-0.097
	(0.4264)	(0.0562)	(0.0622)	(0.0670)
	237	237	258	258
Full-time employment				
	0.4651	0.0649	0.0749	0.0723
	(0.4192)	(0.0582)	(0.0677)	(0.0732)
	237	237	258	258
Part-time employment				
	-0.4825	-0.0652	-0.0776	-0.0658
	(0.4326)	(0.0581)	(0.0585)	(0.0648)
	229	229	258	258
Career fit				
	0.8930**	0.1858**	0.1643*	0.1195
	(0.4070)	(0.0795)	(0.0836)	(0.0970)
	185	185	207	207

Note: For each graduate outcome, the table shows the regression coefficients of PTY from the Logit model, the equivalent ATE and ATET estimates, robust standard errors in parentheses, and the number of observations. The $dy/dx(PTY)$ is the average marginal effect of PTY on the respective outcome. * and ** denote statistical significance at the 10% and 5% level, respectively.

Concluding remarks

- This study attempts to identify the effect of work placements on economics graduates job quality.

Main findings:

1. Work placements have a positive impact on earnings and career fit, but limited effect on job security.

2. It is important to control for other factors, like job characteristics, demographics and school background, that can explain differences in job quality.

3. No differences in job quality due to gender.

As usual, there are some limitations . . .

- Limited *sample* from a specific department/discipline.

  However, our results are in line with larger UK samples.

- Propensity score matching cannot adjust for unobserved differences between placement and non-placement graduates (conditional-independence assumption).

  While we control for an extensive set of covariates, we cannot rule out other possible 'unobserved' characteristics, or motivations for engagement in work placements.

Finally . . .

Thank you for your attention!

Any questions?

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