

# First in family university graduates on the labour market: the role of selection to firms



Anna Adamecz <sup>1,2</sup>    Morag Henderson <sup>2</sup>    Nikki Shure <sup>2,3</sup>

<sup>1</sup>KRTK KTI, Budapest

<sup>2</sup>UCL Social Research Institute, London

<sup>3</sup>IZA, Bonn

12 September 2023  
Unequal Graduate Outcomes Workshop

# Introduction

- ▶ Going to university is a good investment (Oreopoulos and Petronijevic, 2013)
- ▶ Demand for skills has increased (European Commission, 2017)
- ▶ Over last 25 years, the share of university graduates doubled in the EU
- ▶ A substantial share of uni graduates are the “first in their family” (FiF) to go to university (England: 2/3; Henderson, Shure, and Adamecz-Völgyi, 2020)
- ▶ SES gap in university participation (Blanden and Machin, 2004; Britton et al., 2016; Walker and Zhu, 2018)
- ▶ Is higher education an equalizer?

## FiF graduates on the labour market

- ▶ In the US, Nunez and Cuccaro-Alamin (1998) find no wage difference between first-generation and second-generation graduates one year after graduation in the '90s.
- ▶ In this same period, Thomas and Zhang (2005) find a small FiF penalty shortly after graduation, increasing to about 4% in four years.
- ▶ Still in the US, Manzoni and Streib (2019) find a 10% FiF wage gap ten years after graduation that decreases to 3-4% after controlling for race, fertility, early educational attainment and labour market choices (industry, occupation, hours worked, and location).
- ▶ Using survey data from England, Adamecz-Völgyi, Henderson, and Shure (2022) find that young female FiF graduates suffer a wage penalty of 8% compared to female graduates whose parents are graduates, while men do not.

## Our contribution to the literature

- ▶ We are the first to look at the FiF wage gap in a non-Anglo-Saxon country
- ▶ We use administrative data from Hungary (no reporting bias due to being FiF or gender)
- ▶ We link graduates to firms and investigate the role of selection to firms in the gendered FiF wage penalty
- ▶ We compare FiF and non-FiF graduates and find similar results to those in England: the FiF penalty is larger among graduate women than among men
- ▶ We find that both male and female FiF graduates work at “worse” firms than non-FiF graduates, but this difference is 50% larger for women than for men
- ▶ Selection to firms explains 80% of the FiF gap among women

# Data

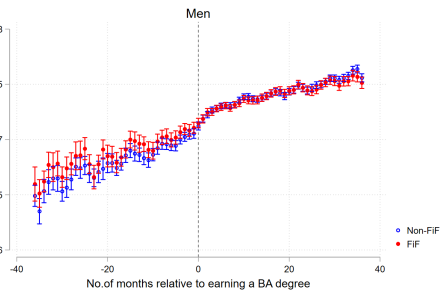
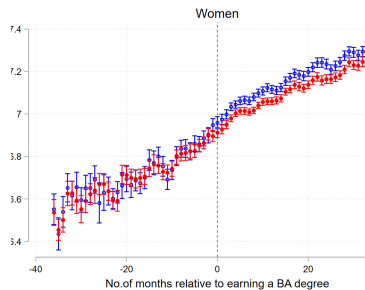
- ▶ Admin3: employer-employee data linked to the National Assessment of Basic Competences (NABC) database and higher education (HE) data
  - ▶ Cohort: those born in 1991-1993 (No. of graduates: 18,000)
  - ▶ Administrative data on wage by age 25/26, as well as industry, occupation and firm identifiers
  - ▶ Local labour market FE (járás)
  - ▶ NABC: data on parental education/background, low-stake test scores from grade 10 (age 16)
  - ▶ HE data: BA or MA, course (STEM/LEM/OSSAH), time of entry/exit, time of earning a degree (if ever)
  - ▶ Firms: value-added, sales revenues, wages, other employees
- ▶ O\*NET
  - ▶ The Occupational Information Network (O\*NET) collects information on the characteristics of occupations
  - ▶ Cognitive skill requirements of jobs (verbal abilities, quantitative abilities, problem-solving, perceptual abilities, spatial abilities, and attentiveness to details)

# FiF statistics (until age 26)

School cohorts born in	Share of potential FiF	Share of graduates among potential FiF	Share of graduates among children of graduate parents	Share of FiF among graduates
June 1991 – May 1992	0.71	0.13	0.43	0.42
June 1992 – May 1993	0.70	0.11	0.37	0.41

Source: Admin3.

# Log hourly wages of graduates



# Empirical methods

- ▶ Being FiF is not random: descriptive evidence, conditional on observables
- ▶ We estimate the FiF wage gap with Mincer-type (wage) models on the sample of university graduates
  - ▶ Outcomes: employment, annual wage, hours worked, hourly wage
  - ▶ (Bad) controls: age (24-26), grade 10 math and reading test scores, region FE, type of degree (STEM/LEM/OSSAH, BA/MA), industry, occupation
- ▶ The role of selection to firms and occupations
  - ▶ Firms: average wage, firm-level premia, value-added, sales revenues, firm-level measures of “female-friendliness”
  - ▶ Occupations: we link data on the skill requirement of occupations from the O\*NET database (cognitive skills)

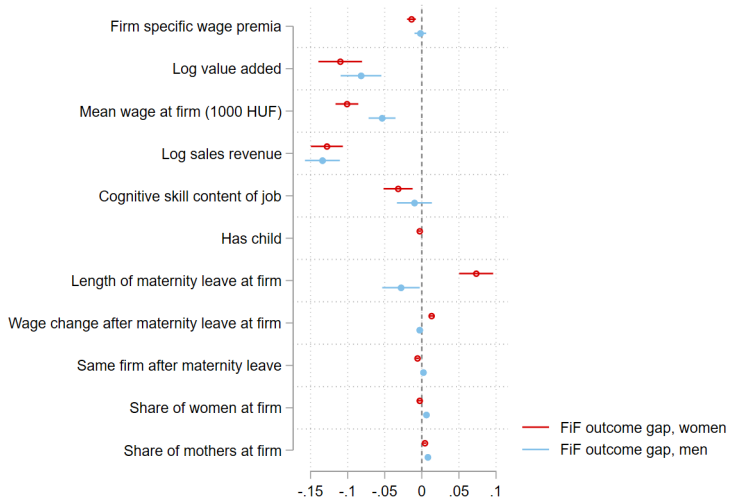


# The FiF gap in log hourly wages

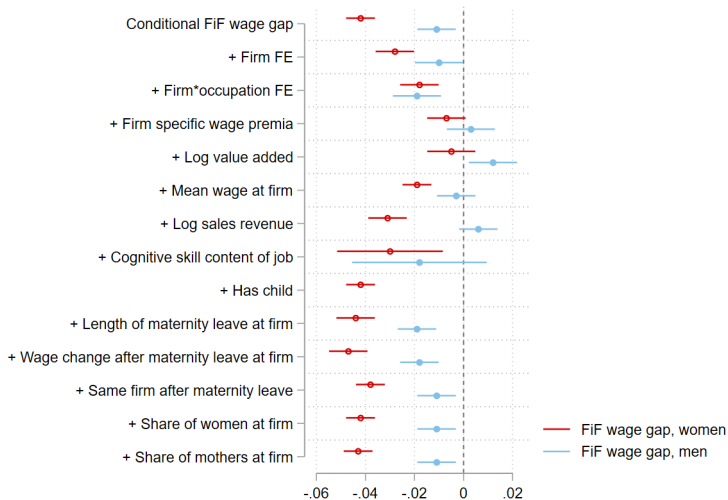
	(1) Model 1	(2) Model 2	(3) Model 3	(4) Model 4	(5) Model 4 Women	(6) Model 4 Men
FiF	-0.026*** (0.002)	0.005 (0.004)	0.007* (0.004)	-0.003 (0.004)	-0.042*** (0.003)	-0.011*** (0.004)
Female	-0.177*** (0.002)	-0.157*** (0.003)	-0.133*** (0.003)	-0.055*** (0.004)		
FiF*Female		-0.048*** (0.005)	-0.042*** (0.004)	-0.043*** (0.005)		
Constant	7.000*** (0.173)	6.984*** (0.173)	7.049*** (0.173)	6.124*** (0.148)	6.200*** (0.099)	6.181*** (0.199)
Observations	174,934	174,934	174,934	105,327	60,693	44,634
R-squared	0.140	0.141	0.174	0.290	0.263	0.302
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Degree type			Yes	Yes	Yes	Yes
Industry				Yes	Yes	Yes
Occupation				Yes	Yes	Yes
Firm size				Yes	Yes	Yes
Sample	Graduates	Graduates	Graduates	Graduates working at double-accounting firms	Female graduates working at double- accounting firms	Male graduates working at double- accounting firms

Robust standard errors in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Coefficients are in log points and may be transformed to percentages through the following transformation:  $100*(e^{\beta} - 1)$ , where beta is the estimated coefficient. Control variables: age, cohort, subregion, grade 10 math and reading scores.

# The FiF gap in firms and jobs



# The role of selection to firms and jobs



# Discussion

- ▶ This paper looked at the FiF gap in graduate wages among men and women using linked employer-employee administrative data
- ▶ We find that similarly to England, the FiF wage penalty is larger on women than on men
- ▶ Selection to firms explains over 80% of the FiF wage gap among women
- ▶ What does this mean? (Not a fertility-related story)

Thank you for your attention!  
nikki.shure@ucl.ac.uk