

to earn more after graduation. Fourth, combining study and work delays the graduation and negatively influences student academic performance [1,3]. In our sample graduates with working experience have worse GPA but findings from wage equation show that the GPA has no association with wages. These shortcomings should be challenged in future research.

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Student employment in Poland: evidence from the Polish Graduate Tracking System

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Student employment has not been at the centre of the debate on higher education in Poland and remains under-researched. The discussion on the relationship between university education and the labour market focuses on graduate employability. However, recent regulatory changes led to the inclusion of pre-graduation employment re-

cords in the Polish Graduate Tracking System (ELA), which offers a glimpse into student employment in Poland.

Educational expansion

The Ministry of Science and Higher Education created ELA in response to concerns about graduates' labour market prospects that arose after the previously elitist higher education system massified within two decades. The liberalisation of tertiary education in Poland in the early 1990s, which was a part of the transformation after the fall of communist rule, created the conditions for the rapid expansion of the sector by allowing increases in enrolment at public institutions and the creation of new private institutions. The changes enabled the university sector to respond to society's demand for university credentials. The result was an almost fivefold increase in the number of students between 1990 and 2006 [1]. Since then, enrolment has been slowly declining, primarily due to demographic dynamics [2].

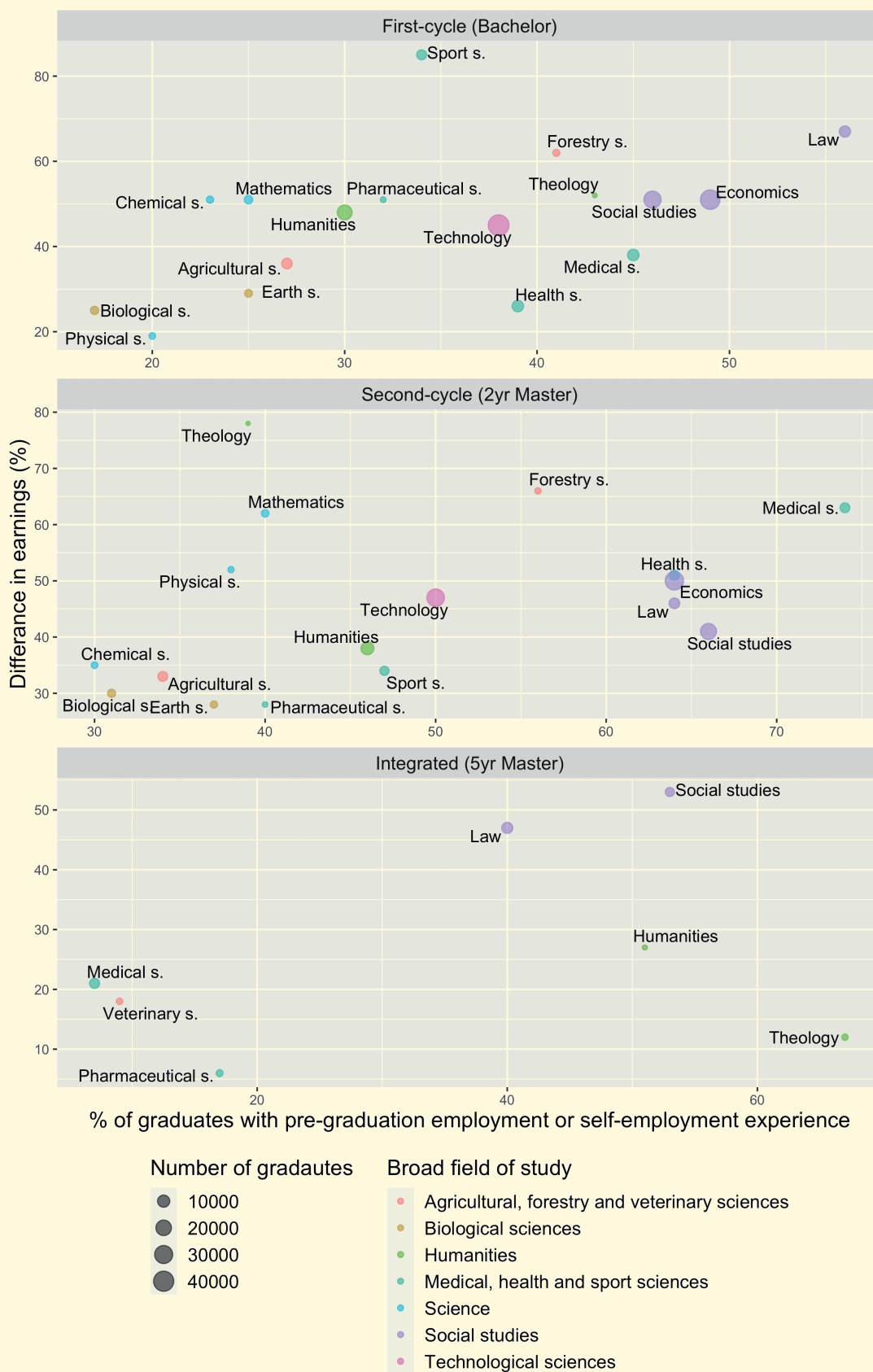
The breakneck growth in the number of students resulted in a deterioration of the labour market advantage of HE graduates [3]. This sparked a heated debate on graduate employability and the merits of at least some degrees. One of the consequences of this debate was the establishment of the ELA system in 2015, which monitors post-graduation labour market outcomes. It supports evidence-based policymaking and guides prospective students in their choice of educational paths.

Data on student employment

The ELA system utilises administrative records collected in POL-on, the Polish integrated system of information on science and higher education, linked to data extracted from the database of the Social Insurance Institution (ZUS) [4]. The primary goal of the system is to track post-graduation labour market performance. However, the latest edition includes ZUS records on the pre-graduation employment and self-employment histories of graduates stretching back to their first enrolment recorded in POL-on. This change created an opportunity to measure the extent to which students undertook economic activity before graduating and ascertain the effects of such activity on their post-graduation outcomes. Accordingly, this paper focuses on the youngest cohort of graduates, i.e. those who finished their studies in 2018, for which the data are most accurate [5].

Employing administrative data has tremendous benefits, chief among them is access to detailed records on the entire population. Unfortunately, those benefits come at a cost. Researchers have little impact on data collection. For student employment analysis, the most significant caveat is that the data do not include records of any civil law contracts of students. A civil law contract is a kind of work arrangement usually meant for casual work. Its flexibility and cost efficiency, especially when employing students, led to its adoption in situations of extended employment as well. Therefore, the actual share of working students is likely even higher.

Figure 1. Graduates with experience of pre-graduation employment or self-employment and difference in earnings between graduates with and without experience by level and field of study



Data source: Polish Graduate Tracking System

Student employment and self-employment

Among graduates of first-cycle (3-year bachelor-level) programmes who finished their studies in 2018, 40% had experience of pre-graduation employment (or self-employment). Almost half of this group had employment preceding the commencement of studies. The share of graduates with such experience is even higher among second-cycle (2-year master-level) programme graduates. 60% of them were employed before graduation, and 40% had episodes of work before the beginning of their last studies. There is one more type of studies, five-year master-level studies reserved only for selected disciplines, such as Medical Science, Law, and Psychology. Graduates of these programmes make up 13% of all graduates and are least likely to have pre-graduation work experience.

Previous research documented differences between fields of study in post-graduation labour market performance. The new ELA data provide evidence that the divergence in professional paths occurs at a much earlier stage. In the case of both first- and second-cycle studies, graduates of social sciences and health sciences are most likely to have experience of pre-graduation employment. Science graduates occupy the other end of the spectrum (see the x-axis in Figure 1).

Graduates of five-year programmes are generally less likely to have pre-graduation work experience than their second-cycle peers. The difference is starkest in the case of medical science. While second-cycle students in this field are most likely to work before graduation (74%), those enrolled in five-year programmes are least likely to do so (7%).

Impact on post-graduation outcomes

Figure 1 also presents the difference in earnings between graduates with and without experience, expressed as the percentage of the average earnings of graduates without experience (y-axis). Unsurprisingly, graduates who have pre-graduation work experience have higher incomes in the first year after graduation. The difference varies widely between fields. In extreme cases, graduates with experience earn 80% more than those without it. In the case of larger disciplines, it rarely exceeds 50%.

Importantly, the share of graduates having work experience does not seem to be related to the increase in average earnings. There is no link between the percentage of graduates with work experience and how well, on average, the graduates of a discipline perform on the labour market.

Conclusion: Next steps

The results show that regardless of the academic discipline, Polish graduates with work experience enjoy a significant labour market advantage in the first year after graduation. The effects of pre-graduation work experience will probably wane with time. However, further research is needed to estimate the size of the effect and to ascertain for how long it lasts.

References and notes

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- [4] Detailed information on data sources, linkage, and methodology can be found on the project's website: <https://ela.nauka.gov.pl/en/experts/source-data>
- [5] Pre 2014 POL-on records are deemed likely to be incomplete. There is a higher risk that some groups of graduates were not properly reported by universities. This means that the older the graduate cohort, the shorter on average the observation window during which employment or self-employment is captured.



Reading list

Research on student employment focuses on the incidence, determinants and motivation of combining study and work, and its educational and labour market outcomes. There are several research questions related to the determinants and motivation of student employment, including what type of students from which socio-economic backgrounds are likely to combine study and work, and whether the main motivations of student employment are financial or the accumulation of work experience. Studies of the educational outcomes of student employment explore its effects on the quality of education, academic achievement and dropout rates. Studies of labour market outcomes of combining of study and work are focused on graduate employability, salaries and returns to education and consider the phenomenon of student employment using the approaches of human capital and job market signaling theories.

We have prepared a list of selective academic publications which explore the problem of student employment and might be of particular interest to our readers.

Determinants and patterns of student employment

- Beerkens, M., Mägi, E., & Lill, L. (2011). University studies as a side job: causes and consequences of massive student employment in Estonia. *Higher education*, 61(6), 679-692.
- Darmody, M., & Smyth, E. (2008). Full-time students? Term-time employment among higher education students in Ireland. *Journal of Education and Work*, 21(4), 349-362.