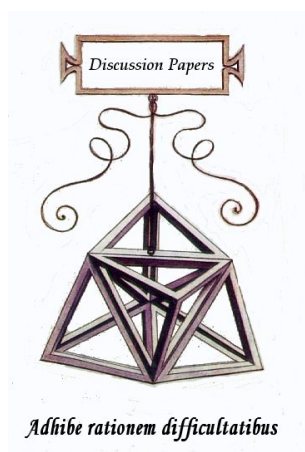




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Irene Brunetti, Lorenzo Corsini

From work experience during school to job finding after school: an empirical analysis

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Authors' address/Indirizzo degli autori:

Irene Brunetti — INAPP - Istituto Nazionale per le Analisi delle Politiche Pubbliche (I.
E-mail: irene.brunetti@inapp.it

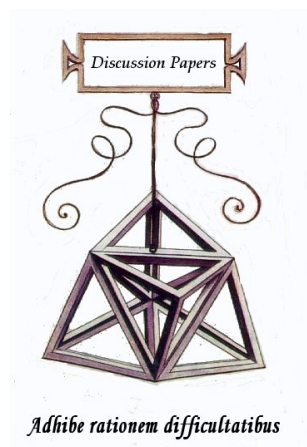
Lorenzo Corsini — University of Pisa - Department of Economics and Management.
E-mail: lorenzo.corsini@unipi.it

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Irene Brunetti, Lorenzo Corsini

From work experience during school to job finding after school: an empirical analysis

Abstract

In this paper we analyze the role that work experience during school has in the school-to-work transition. We exploit an ad-hoc module from European labour force survey to have detailed information about young workers in 2016 and estimate the determinants of the job finding process. Since the estimation may suffer from a selection into sample problem, we use the Heckman correction model to solve this issue. Results show that work experience during school successfully increases the probability to find a job and a policy facilitating work programs within school tracks could be effective. However, we also find that the efficacy of this work experience is larger in labour markets whose performance is lacking (in the Centre and South of Italy) whereas it tends to be smaller and not significant in markets that are better off (the north of Italy).

Keywords: School-to-work transition; work experience, vocational studies

JEL Classification: I21, I26, J24

From work experience during school to job finding after school: an empirical analysis

Irene Brunetti¹ and Lorenzo Corsini²

Abstract

In this paper we analyze the role that work experience during school has in the school-to-work transition. We exploit an ad-hoc module from European labour force survey to have detailed information about young workers in 2016 and estimate the determinants of the job finding process. Since the estimation may suffer from a selection into sample problem, we use the Heckman correction model to solve this issue. Results show that work experience during school successfully increases the probability to find a job and a policy facilitating work programs within school tracks could be effective. However, we also find that the efficacy of this work experience is larger in labour markets whose performance is lacking (in the Centre and South of Italy) whereas it tends to be smaller and not significant in markets that are better off (the north of Italy).

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Jel Classification: I21, I26, J24

Declarations

Data source

The analysis is based on data obtained from Eurostat, EU-LFS under the contract RPP-14/2018-EU-SILC-AES-LFS-SES. Eurostat has no responsibility for the results and conclusions, which are those of the researchers.

¹ Irene Brunetti, INAPP, i.brunetti@inapp.gov.it

² Lorenzo Corsini, Corresponding Author, University of Pisa, lorenzo.corsini@unipi.it

1. Introduction

Having more education, knowledge and skills positively impacts the probability of finding employment, improving skills while on the job and achieving higher earnings over a lifetime. What people know and how they apply that knowledge has a significant effect on labour market outcomes. A healthy labour market absorbs a range of skills at various levels, minimising skill mismatches situations where workers' skill levels or qualifications are either higher or lower than required for their jobs (referred to as "overkilling" or "underkilling").

It is widely accepted that vocational education facilitates the transition from school to work and enhances employment outcomes by providing students with opportunities to acquire workplace-relevant skills during their studies (Hotchkiss, 1993; Hanushek et al., 2017; Brunello and Rocco, 2017; Brunetti and Corsini, 2019; Comi et al., 2022). However, the empirical literature has not reached a consensus on the effects of vocational education. For example, Verhaest and Baert (2018) argue that vocational education improves initial employment prospects but that general education reduces the risk of skill mismatch persistence in later stages. Hotchkiss (1993) finds no significant returns to vocational schooling whereas Bishop and Mane (2004) and Meer (2007) report small but positive wage increases. In a cross-country comparative analysis, Ryan (2001) indicates that vocational programmes increase the likelihood of early employment.

One way to amplify the positive effects of vocational education is by combining classroom-based technical training with practical experience such as apprenticeships or internships. Economic theory suggests that gaining work experience during schooling facilitates the school-to-work transition and improves young people's labour market outcomes (Le Barbanchon et al., 2023). In about half the countries with available data, 25–34-year-olds who gained work experience outside the curriculum have the highest employment rates among all younger adults with vocational education. Conversely, the lack of work experience during studies is associated with lower employment rates later in life. For instance, 25–34-year-olds with vocational upper-secondary or post-secondary non-tertiary qualifications but no work experience during their studies have the lowest employment rates in about half the countries studied (OECD, 2020, 2022). Working while studying allows students to acquire workplace-specific skills (hard, soft, general or firm-specific) that cannot be learned in school (Adhvaryu et al., 2018; Alfonsi et al., 2020). Additionally, work experience can act as a signal to employers indicating prospective workers' productivity or motivation (Farber and Gibbons, 1996; Pallais, 2014) and if the work experience is paid, it may provide students with financial resources to continue their education (Kean and Wolpin, 2001). If we consider the effect of work experience, Oswald-Egg and Renold (2021), find that higher education graduates with work experience find a job more quickly and receive higher wages.

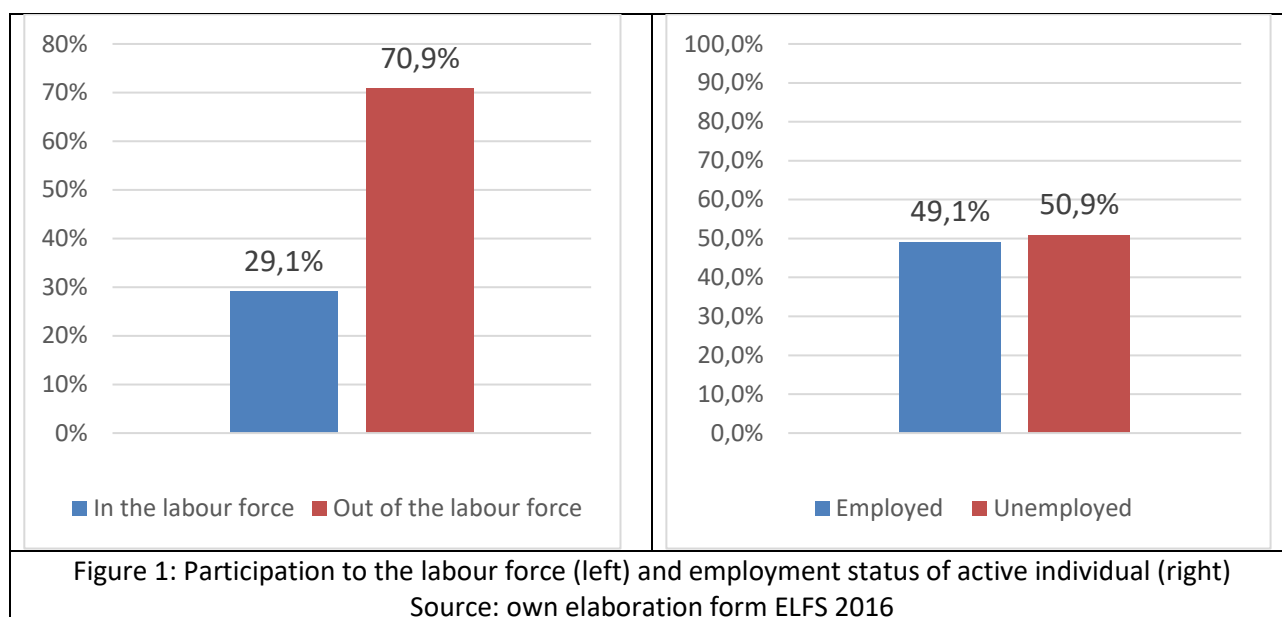
By focusing on work experience and its effect on labour market outcomes, this paper analyses the impact of work experience on a sample of Italian upper-secondary graduates. The study uses data from an ad-hoc module of the 2016 European Labour Force Survey. This module focuses on young people in the labour market and allows us to identify the 2016 employment status of individuals who obtained a secondary degree in 2015. Using this sample, we assess the determinants of the school-to-work transition and the role of work experience during the school track (a variable available in our dataset). Furthermore, given that Italy's education system is uniform across the nation, we also analyse the role played by the geographical area where individuals live.

In particular, in our analysis, we estimate a two-step Heckman correction model. In the first step, we determine the factors influencing labour force participation (i.e., the decision to look for a job). In the second step, we estimate the “corrected” determinants of finding or not finding a job. The need for this correction arises because finding a job is only possible for those who actively search for one. This creates a selection bias that must be addressed, and the Heckman procedure is used to resolve this issue. Our results show that work experience is valuable in facilitating the school-to-work transition, although its impact varies across geographical areas. The effect is stronger and more significant in regions with weaker labour market conditions (i.e., the South and Centre of Italy). In the better-performing North of Italy, the effect remains positive but is smaller and statistically insignificant. From a policy perspective, these findings suggest that introducing work experience during school tracks is especially beneficial in regions facing greater challenges in employment opportunities.

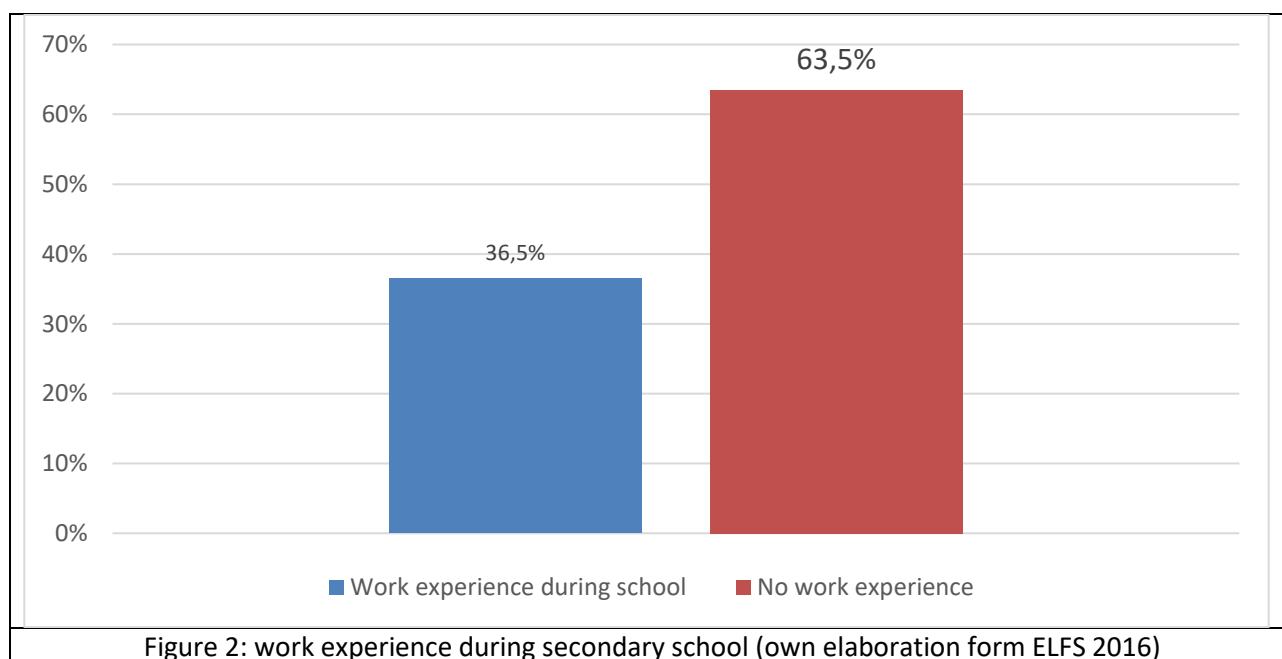
The paper is structured as follows: Section 2 provides a description of the database and key variables of interest. Section 3 explains the empirical methodology and presents the results. Finally, Section 4 concludes.

2. Data

The database used in this study comes from the 2016 ad-hoc module of the European Labour Force Survey (ELFS). In addition to the standard variables included in the ELFS, the ad-hoc module provides focused information on young people in the labour market. The key variables used in our analysis are employment status (employed, unemployed, and out of the labour force) and educational attainment, along with the year this attainment was achieved. This data allows us to observe the school-to-work transition. From this perspective, we focus on individuals who obtained their upper secondary degree in 2015, examining their employment status in 2016. The month of the interview is approximately March, while graduations in Italy typically occur around July. Thus, we observe the employment situation about 8 months after graduation (from July 2015 to March 2016). The overall sample size for the ad-hoc module (comprising all individuals under 32 years old in the ELFS) is 25,160. However, once we narrow the sample to individuals who obtained an upper secondary degree in 2015, it is reduced to 856 observations. Using this sample of secondary graduates, we provide some descriptive statistics (see Figure 1) on labour force participation and success in finding employment. It is evident that staying out of the labour force is the most common choice, as the majority of upper secondary graduates pursue tertiary education. Among those who choose to enter the labour market, approximately half manage to find a job within one year of graduation (or, more precisely, within 8 months).



The other key aspect that we use in our analysis is the data on whether individuals had some work experience during their secondary school: this is something that is contained exclusively in the 2016 ad-hoc module. Figure 2 reports data on the work experience.



The three variables mentioned above are likely the most relevant for our analysis: participation and job finding represent the final outcomes of the school-to-work transition, while work experience is the key element we aim to focus on.

In addition to these variables, we include several other controls that can play a significant role in the school-to-work transition. Specifically, the ELFS provides information on the following: region of residence (NUTS 1 level), gender, age, country of birth, degree of urbanisation of the place of residence, characteristics of the secondary degree (vocational or non-vocational), number of

siblings currently enrolled at university, and parents' education (available only in the ad-hoc module). These variables, or some derivations thereof, will be included in our regression analysis.

3. Empirical analysis

Our analysis aims to evaluate the transition of secondary school graduates into employment. Specifically, we seek to identify the determinants of this process, with a particular focus on the role that work experience during school may play. Practically, we observe the current employment status of individuals who graduated one year prior to the observed status and estimate the factors that determined it. At a basic level, we aim to determine whether an individual ended up being employed or unemployed, which suggests the use of a probit regression. However, conducting such an analysis on this binary outcome requires addressing the issue that only individuals who entered the labour force can be classified into one of these two outcomes. This raises a self-selection problem, as individuals who chose to enter the labour force may differ, in terms of unobservable characteristics, from those who remained out of it. Furthermore, these differences in unobservable components may correlate with some observable covariates, thereby biasing the estimation of their effects. This is a well-known issue, and one possible solution is the Heckman selection model (Heckman, 1979). This model employs a two-step procedure: the first step determines selection into the sample (in our case, entering the labour force), and the second step, using a correction derived from the first, estimates the final outcome (employment or unemployment). A key aspect of this procedure is that, for proper identification, it is necessary to identify a variable that explains participation in the sample (labour force entry) but does not affect the second step's outcome (employment probability).

In our context, the first step involves the decision to enter the labour force. For recent secondary school graduates, the primary reason for staying out of the labour force is the decision to pursue tertiary education¹. Applying this consideration within the Heckman selection model framework, we need a variable that explains non-enrolment in tertiary education but does not influence the likelihood of finding a job after entering the labour force. We identify this variable as the number of siblings currently attending university. Our reasoning is that having siblings in university increases the likelihood of enrolling in tertiary education (and thus not entering the labour force) by reducing costs, providing more information, and potentially creating an imitation effect². Crucially, we believe that the presence (or absence) of siblings attending university does not affect the probability of finding a job for individuals who enter the labour force immediately after obtaining their secondary school degree.

From an estimation perspective, the validity of our results depends on the number of siblings being a strong predictor of labour force entry. We show that this is indeed the case. Table 1 presents the results of the two-step procedure, where the first step (the selection equation) includes all variables of interest, and the second step (the outcome equation) estimates a corrected probit regression that excludes the number of siblings currently attending university.

¹ Please be aware that, in Italy, holding a secondary degree is in enough to enrol in almost all public university without the necessity of being granted admission through tests or further evaluation from the chosen university.

² It is important to stress that we are controlling for parents' education to avoid confounding effects stemming from family background.

	Selection Equation Selection into labour force	Outcome equation Finding a job
Number of siblings at university	-0.317*** (0.109)	
Vocational studies	0.962*** (0.129)	0.666*** (0.149)
Female	0.0116 (0.117)	-0.110 (0.142)
Older than 19	0.420*** (0.113)	0.414*** (0.147)
Born in a different country	0.167 (0.267)	0.128 (0.286)
Live in a town	-0.0318 (0.138)	-0.185 (0.162)
Live in a rural area	0.0628 (0.139)	-0.0757 (0.162)
Work experience during school	0.528*** (0.122)	0.462*** (0.155)
Highest parents education is tertiary	-0.427** (0.185)	-0.285 (0.220)
Highest parents education is secondary	-0.338** (0.134)	0.0304 (0.150)
Regional controls	Yes	Yes
Correction factor	11.98*** (0.713)	
Constant	-1.354*** (0.226)	-1.796*** (0.294)
Observations	856	256

Table 1: Heckman correction model for employment status
Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

First, our estimation shows that the number of siblings enrolled in tertiary education has a strong and highly significant negative effect on the probability of entering the labour force. This indicates that individuals with siblings in university are much more likely to enrol in tertiary education themselves. This result is crucial as it underscores the reliability of the selection model we are using. Other variables that significantly influence labour force participation include parental education, obtaining a degree from a vocational school, and work experience during school. These findings align well with expectations: having well-educated parents reduces the likelihood of seeking employment (or, conversely, increases the likelihood of enrolling in university), while holding a vocational degree encourages entry into the labour force. Additionally, being older than usual at the time of graduation increases the probability of looking for a job, likely reflecting that delayed secondary graduation is associated with lower suitability for continuing education.

Regarding the outcome equation—the central focus of our analysis—we find that, after correcting for the selection bias, work experience during school significantly increases the probability of finding

a job. Beyond this, we also observe that vocational education has a positive effect on employment prospects, consistent with findings from previous studies such as Brunetti and Corsini (2019). Furthermore, older graduates appear to perform better in securing employment, potentially due to greater maturity or life experience.

3.1 Regional analysis

The analysis of the school-to-work transition process and the role of work experience during school can be extended by examining differences across geographical areas. Italy is well known for its significant regional disparities in economic performance and labour market conditions. For example, data from ISTAT indicate that the unemployment rate for individuals aged 15–64 in 2016 was 7.7% in the northern regions, 10.7% in the central regions, and 20% in the southern regions. A similar north-to-south pattern emerges when looking at the unemployment rate for the 15–24 age group, with rates of 26% in the north, 35.8% in the centre, and 52.8% in the south. These figures highlight the stark differences in labour market conditions faced by job seekers across regions, suggesting that the mechanisms governing the transition to employment may vary by area.

To investigate this possibility, we use the following geographical divisions: the north (north-west and north-east regions), the centre (central regions), and the south (southern and insular regions). This classification aligns with the observed north-south pattern and ensures that each area has a sufficiently large estimation sample. Based on this geographical division, we replicate our two-step estimation, allowing for area-specific constants and area-specific effects of work experience during school. From a technical perspective, this is achieved by including dummy variables for geographical areas (using the central regions as the reference category) and interaction terms between the area dummies and the work experience variable. The results of this regional estimation are presented in the table below.

	Selection Equation Selection into labour force	Outcome equation Finding a job
Number of siblings at university	-0.370*** (0.0896)	
Vocational studies	0.951*** (0.129)	0.598*** (0.146)
Female	-0.00787 (0.117)	-0.125 (0.134)
Older than 19	0.417*** (0.113)	0.337** (0.150)
Born in a different country	0.164 (0.270)	0.113 (0.295)
Live in a town	-0.0228 (0.137)	-0.158 (0.157)
Live in a rural area	0.0970 (0.135)	-0.0204 (0.148)
Work experience during school - North	0.290* (0.17)	0.0832 (0.201)
Work experience during school - Centre	0.459** (0.232)	0.496** (0.248)
Work experience during school - South	0.886*** (0.200)	1.005*** (0.256)
Highest parents education is tertiary	-0.477*** (0.184)	-0.323 (0.227)
Highest parents education is secondary	-0.349** (0.135)	0.0282 (0.149)
Live in the north	0.0589 (0.205)	0.466** (0.225)
Live in the south	0.0550 (0.200)	-0.0189 (0.223)
Correction factor	13.36*** (0.112)	
Constant	-1.223*** (0.236)	-1.810*** (0.248)
Observations	856	256

Table 2: Heckamn correction model for employment status at macro-regional level
Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

The results for the selection equation are similar to those obtained in the aggregate estimation. The only notable difference is that work experience for graduates in the northern regions shows borderline significance in increasing the probability of entering the labour market.

Conversely, some differences emerge in the outcome equation. First, living in the north increases employment probabilities, which is unsurprising given the better labour market conditions in this area. More interestingly, the positive effect of work experience during school appears significant only in the central and southern regions. In the northern regions, while the effect remains positive, it is smaller in magnitude and no longer statistically significant. This result suggests that the

effectiveness of work experience (and work programs during school) is particularly pronounced in regions with more adverse labour market conditions, while its utility seems more limited in well-functioning labour markets. Additionally, the regional analysis reveals that better parental education reduces the likelihood of finding a job. Although this might seem counterintuitive, it could be explained by the fact that individuals from more advantaged family backgrounds may be less inclined to accept the first job they find and can afford to spend more time searching for better opportunities.

4. Conclusion

Our analysis focused on evaluating the impact of work experience during the educational path. Specifically, we examined the transition of upper secondary graduates into employment and found that those with work experience were not only more likely to search for a job after graduation but, all else being equal, were also more likely to secure a job once they entered the labour market. Given the well-documented challenges young people face during the school-to-work transition, our findings suggest that policies and programs promoting work experience during the school track could play a valuable role in facilitating the job search process. Furthermore, when incorporating a geographical dimension into our analysis, we found that work experience is particularly beneficial in areas with weaker labour markets. In this context, work during school emerges as a crucial tool, especially in regions where, as is often the case, young people face significant difficulties in securing employment.

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