

# INEQUALITIES AT ENTRANCE, LABOUR MARKET CONDITIONS AND UNIVERSITY DROPOUT: FIRST EVIDENCE FROM ITALY

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**ABSTRACT:** This research investigates university students' dropout by focusing on the role of students' educational backgrounds and labour market conditions of both origin and destination areas. We exploit the administrative data from the Italian National Student Archive related to students enrolled in an Italian university between 2011 and 2018 by applying a two-step approach to separate students' career disruption effects related to their high school background, attended university, and degree program from those associated with labour market and socioeconomic conditions (e.g., unemployment, income, number of firms). In the first step, the effect of secondary schools, degree programs, and universities on students' performance in terms of earned formative credits is estimated using fixed regression models. In the second step, the estimated fixed effects are used in a multinomial logit model to account for the role played by high schools and universities in assessing the effect on students' career disruption of the labour market conditions of both origin and destination areas.

**KEYWORDS:** university dropout, multilevel models, university services, labor market conditions, school effect

## 1 Introduction and aims

According to the Human Capital Theory the investment in education is strictly affected by its expected returns (Becker, 1964). However, it is not straightforward how expectations related to the job market conditions affect the decision to invest in higher education (Di Pietro, 2006; Contini & Zotti, 2022). Indeed, these elements affect education decisions in two ways: fewer job opportunities may encourage students to have better credentials to spend in the labour market, while family income losses may push students to enter the labour market and abandon the university (Duncan, 1965; Rees & Mocan, 1997). Indeed, according to the main literature, better labour market conditions may increase the

cost of investment in education, determining higher dropout rates for students who experience difficulties in their university careers, come from disadvantaged backgrounds, or are enrolled at the university to avoid unemployment. However, better labour market conditions can provide more resources to support families' education investment and increase its expected returns. Indeed, several studies related to the Italian framework highlight a negative relationship between worse job market conditions and students' dropout (Di Pietro, 2006; ?; Contini & Zotti, 2022; Contini & Cugnata, 2018; Meggiolaro *et al.*, 2017; Tedesco, 2022; Perchinunno *et al.*, 2021). However, Contini & Zotti, 2022 show that a general trend does not emerge if differences across disciplinary areas are considered.

This paper investigates the effects of labour market conditions, students' high school past experiences and universities' environment on students' dropout risk between the first and the second year of their university career. We combine administrative data on students' university careers in Italy with several complementary data sources regarding the socioeconomic conditions of both students' areas of residence and universities' hosting areas. This data is exploited using a two-step approach to disentangle the effect of students' educational background and individual characteristics from the one related to local labour market conditions. The paper is organised as follows: Section 2 describe the database used and the methods applied in the research; Section 3 discusses the preliminary results and concludes.

## 2 Data and methods

This research is based on the data from the MOBYSU.IT database regarding the careers of all students enrolled in an Italian university between 2011 and 2018.\* MOBYSU.IT includes information on several students' characteristics such as their sex, high school background, municipality of residence, age, and the chosen university and degree programs. We have collected data on 1,668,882 first-year students.

MOBYSU.IT also contains the data on the formative credits (CFU) earned by each student within her/his first year of career.† This information helps

\*Data drawn from the Italian 'Anagrafe Nazionale della Formazione Superiore' has been processed according to the research project 'From high school to the job market: analysis of the university careers and the university North-South mobility' carried out by the University of Palermo (head of the research program), the Italian 'Ministero Università e Ricerca' and INVALSI

†The CFU are similar to the European Credit Transfer and Accumulation System (ECTS),

measure the regularity of students' careers in terms of exams passed during their first year of career and to define students' risk of dropout. At this aim, we classify students into dropouts, at risk of dropout, and regulars. Dropouts are students who are not enrolled in any university in their second year of career and, therefore, that have abandoned the Italian university system. Students at risk of dropout are those that have obtained less than 25 CFU within their first year of career, while regulars are the residual category. The threshold of 25 CFU is chosen based on the observed values of CFU obtained among regulars and dropouts. Indeed, 95% of dropouts have obtained less than 25 CFU during the first year of their career.

The MOBYSU.IT database has been combined with the data obtained from ISTAT to assess the role of labour market conditions on students' career disruption. At this aim, we collected data on the provincial unemployment rate, total taxable income per capita at the municipal level, and the number of local firms or branches of firms in the municipality. These indicators have been obtained for students' areas of residence and universities' hosting areas.

This data is exploited by applying a two-step procedure to disentangle the effect related to students' educational backgrounds from the one related to origin and destination areas' labour market conditions. The first step consists of two fixed effects regression models that estimate the CFU obtained by students as a function of high school fixed effects and universities  $\times$  degree programs fixed effects. The second step uses the fixed effects estimates to account for the average role of high schools and universities' degree programs on students' dropout risk. More specifically, a multinomial logit model is estimated to assess the role of students' characteristics and labour market conditions on the probability of dropout, being at risk or being a regular student.

### **3 Preliminary Results**

Preliminary results provide evidence that the inequalities at entrance related to the high school background and the attended university have a relevant role in affecting students' probability to experience an event of career disruption. Indeed, the average effect of high schools on the CFU obtained by students is one of the main predictors of the probability to dropout even when accounting for students' and areas' characteristics. Furthermore, high schools plays a relevant role also with respect to students' risk of dropout. However, in this case, the most important predictor is given by the set of university  $\times$  degree

and they represent a measure of the workload associated with each exam.

programs fixed effects that measure the average performances of students in the institutions in terms of CFU. The results also show that labour market conditions have different effects depending on whether we consider dropouts or students' at risk of dropout and that these effects change when looking at origin or destination areas. Further research will study the effect of labour market conditions and how it changes depending on students' socioeconomic conditions. Moreover, the use of ad-hoc survey could provide valuable insight on the optimal policies to contrast university dropout.

## References

- BECKER, GARY S. 1964. *Human capital: A theoretical and empirical analysis, with special reference to education*. University of Chicago press.
- CONTINI, D., & CUGNATA, F. AND SCAGNI, A. 2018. Social selection in higher education. Enrolment, dropout and timely degree attainment in Italy. *Higher Education*, **75**, 785–808.
- CONTINI, D., & ZOTTI, R. 2022. Do Financial Conditions Play a Role in University Dropout? New Evidence from Administrative Data. In *Checchi, D., Jappelli, T., and Uricchio, A. (eds): Teaching, Research and Academic Careers: An Analysis of the Interrelations and Impacts*, 39–70.
- DI PIETRO, G. 2006. Regional labour market conditions and university dropout rates: Evidence from Italy. *Regional Studies*, **40**, 617–630.
- DI PIETRO, GIORGIO, & CUTILLO, ANDREA. 2008. Degree flexibility and university drop-out: The Italian experience. *Economics of Education Review*, **27**(5), 546–555.
- DUNCAN, B. 1965. Dropouts and the unemployed. *Journal of Political Economy*, **73**, 121–134.
- MEGGIOLARO, SILVIA, GIRALDO, ANNA, & CLERICI, RENATA. 2017. A multilevel competing risks model for analysis of university students' careers in Italy. *Studies in Higher Education*, **42**(7), 1259–1274.
- PERCHINUNNO, PAOLA, BILANCIA, MASSIMO, & VITALE, DOMENICO. 2021. A statistical analysis of factors affecting higher education dropouts. *Social Indicators Research*, **156**, 341–362.
- REES, DANIEL I, & MOCAN, H NACI. 1997. Labor market conditions and the high school dropout rate: Evidence from New York State. *Economics of Education Review*, **16**(2), 103–109.
- TEDESCO, N., SALARIS L. 2022. University drop out and mobility in Italy. First evidences on first level degrees. In *Pollice, A., Salvati, N., Schirripa Spagnolo, F. (eds): SIS 2020 - Book of Short Papers*, 1601–1606.