EXPLICIT AND IMPLICIT SCHOOL LEAVING: HOW TO COMBINE THE TWO MEASURES?

Barbara Baldazzi, Patrizia Falzetti, Paola Giangiacomo

Abstract. Insufficient mastery of fundamental skills hinders entry into the labor market and, more broadly, impedes the attainment of a high quality of life. Early Leavers from Education and Training (ELET), defined by ISTAT as the proportion of 18 to 24-year-olds holding at most a secondary school leaving certificate and not currently enrolled in any educational or training program, serves as the established indicator for early school leaving. This metric is standardized at the European level. The European Community had set a target for Italy to achieve a 10% ELET rate by 2020. In 2020, Italy's ELET rate stood at 14.2%, decreasing to 9.8% in 2024. However, ELET data alone do not fully capture the scope of the early school leaving problem. Students who complete upper secondary education without acquiring the minimum required competencies are not accounted for in this calculation. INVALSI data allows for the observation of this phenomenon, which we term Implicit Leavers from Education and Training (ILET). Implicit school leaving constitutes a problem of equal significance to explicit early school leaving. Quantifying the share of ILET is challenging, but since 2019, INVALSI assessments have provided a representation of this phenomenon. Individuals who, despite graduating, do not achieve at least Level 3 in the Italian language and Mathematics tests, and who fail to reach Level B1 in Reading and Listening in English, possess competence levels aligning with the educational objectives set for eighth-grade students—considerably below the expected proficiency for their educational attainment. The ability to measure the overall phenomenon of school leaving furnishes schools and policymakers with crucial information. This paper aims to estimate the total school leaving rate by statistically matching data from ISTAT (for ELET) and INVALSI (for ILET). A general dispersion estimate will be derived using ISTAT data for ELET and INVALSI data for ILET at the regional level.

1. Introduction

Early school leaving is a social problem that Italy, like other countries, is trying to reduce. In fact, despite a steady decrease over the last 10 years, the share of young people leaving the education and training system early remains high. Young people who interrupt their education at an early age face adult life with insufficient basic skills to enter the job market and, more generally, to live a quality life (ISTAT, 2021b). Dropping out of school is only the tip of the iceberg. The difficulty for some

young people to continue successfully in education and training starts early in school (OECD, 2018; Tarabini *et al.*, 2019). Inadequate competences are perpetuated over the years and influence school choice, learning and, ultimately, the decision to leave the school system.

2. Objective

Early Leavers from Education and Training (ELET), i.e. the share of 18 to 24 year old with at most a secondary school leaving certificate and not attending a school or training course, is the indicator provided by ISTAT[1] that defines early school leaving (ISTAT, 2021a). This measure is agreed at European level and is present in monitoring systems such as the United Nations 2030 Agenda (Baldazzi, 2021), Italy's National Strategy for Sustainable Development, and the ISTAT Equitable and Sustainable Well-being Framework (BES – Equitable and Sustainable Well-being). However, the ELET data cannot give the exact dimension of the problem of early school leaving (Ricci, 2019). Students who graduate from upper secondary school without having reached the minimum skills required for their studies are not included in the calculation INVALSI data make this phenomenon observable, and we call it implicit leavers from education and training (ILET). Establishing the share of ILET is not easy, but since 2019 the INVALSI[2] tests can give a first representation of the phenomenon.

Is it possible to estimate overall early school leaving using currently available data sources? What are the methodological statistical problems to be overcome? An estimate of the overall dispersion will be obtained using ISTAT data for ELET and INVALSI data for ILET, at regional level. Measuring the overall phenomenon of early school leaving could provide schools and policy makers with essential information to implement policies to improve learning and reduce dropout.

3. Data, methods and problems

Early Leavers from Education and Training (ELET), i.e. the share of 18 to 24 year olds with at most a secondary school leaving certificate (level 2 of ISCED) and not attending a school or training course, is the indicator provided by ISTAT. Data on early leavers are derived from the EU's labour force survey (LFS); the data are calculated as annual averages of quarterly data. This measure is agreed at European

[1] Italian National Statistical Institute
[2] National Institute for the Evaluation of the Education and Training System

level. The European community had set a target for Italy to reach a 10% share of ELETs by 2020. In 2020, Italy's ELET rate stood at 14.2%, decreasing to 9.8% in 2024. The numerator of the indicator refers to persons aged 18-24 who meet the following two conditions: (a) the highest level of education or training they have completed is ISCED[3] levels 0, 1 or 2 and (b) they have not received any education or training (in other words neither formal nor non-formal) in the four weeks preceding the survey. The denominator is the total population of the same age group, excluding respondents who did not answer the questions 'highest level of education or training successfully completed' and 'participation in education and training' (this number is negligible. They do not affect the result.).

Implicit Leavers from Education and Training (ILET) are students that, at the end of upper secondary school, do not reach the minimum competences level expected by their course of study; more in detail is the share of students in grade 13 who reached at most level 2 in Italian and in Mathematics and who did not reach level B1 in English both for reading and listening4 . So, their achievement level is insufficient in all the subjects examined by INVALSI tests. These students obtain the «diploma» but they don't reach level 3 in Italian language and Mathematics and don't even reach level B1 in English listening and reading; their levels match the learning goals required for low secondary schools students, that is definitely lower than expected. The implicit dispersion indicator, representing the proportion of students who do not achieve the targets set out in the Reference Framework for Italian, Mathematics and English, is undoubtedly a national measure created by INVALSI; nevertheless, this measure can also be reproduced at international level based on the levels considered sufficient by both national and international surveys.

We encountered some problems to combine the two different sources. The first problem concerns the different survey periods: INVALSI data are calculated per school year from 2018/2019 to 2022/2023; LFS data are calculated per calendar year with a continuous survey throughout the year (from year 2018 to year 2023). From this first problem follows the second problem: the students/young people interviewed are from different cohorts. We have made some assumptions on how to harmonise them. We assume that the INVALSI data for 2018/2019, cover students aged 18 in 2018 and aged 19 in 2019. Corresponding to the school year 2018/2019

[3] The International Standard Classification of Education (ISCED) belongs to the United Nations International Family of Economic and Social Classifications, which are applied in statistics worldwide with the purpose of assembling, compiling and analysing cross-nationally comparable data (Unesco-UIS, 2012). The levels are: 0 Less than primary education; 1 Primary education; 2 Lower secondary education; 3 Upper secondary education; 4 Post-secondary non-tertiary education; 5 Short-cycle tertiary education; 6 Bachelor's or equivalent level; 7 Master's or equivalent level; 8 Doctoral or equivalent level.

[4] For the definition of the levels see the National Report Invalsi Tests 2019
https://invalsi-areaprove.cineca.it/docs/2019/Rapporto_prove_INVALSI_2019.pdf

for the LFS data we consider population of 17, 18, 19 years old in 2018 and population of 18, 19, 20 years old in 2019.

The choice of taking two survey waves and 3 population cohorts for each wave also allows for sufficient numerosity for a very limited phenomenon such as ELETs .

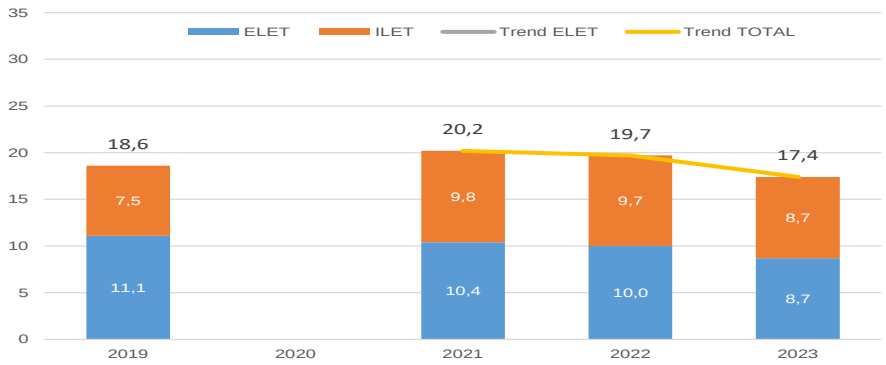
So to harmonise the INVALSI data for 2022/2023, covering students aged 18 in 2022 and aged 19 in 2023, we use the LFS data for the population of 17, 18, 19 years old in 2022 and the population of 18, 19, 20 years old in 2023.

Under the assumption that we manage to capture the same population (students in grade 13 (subset 1) + students who should be in grade 13 in the same school year but who dropped out of school without completing it (subset 2)) and that the two subsets are separate, it is possible to add up the percentage of those who drop out of school and those who do not reach adequate skills: ELET + ILET. The result is a proxy of overall leavers from education and training (OLET).

4. Results

The share of explicit leavers from education and training in scholastic year 2022/2023 in Italy was 2.4 percentage points lower (8.7%) than in 2018/2019 (11.1% - Figure 1). The other way round, share of implicit leavers from education and training in scholastic year 2022/2023 was 1.2 percentage points higher (8.7%) than in 2018/2019 (7.5%).

Figure 1 – *Proportion of ELET (people 17-20 years old) and ILET (students in grade 13) in four scholastic years (2018/2019 – 2022/2023) – Source: Istat LFS and Invalsi.*

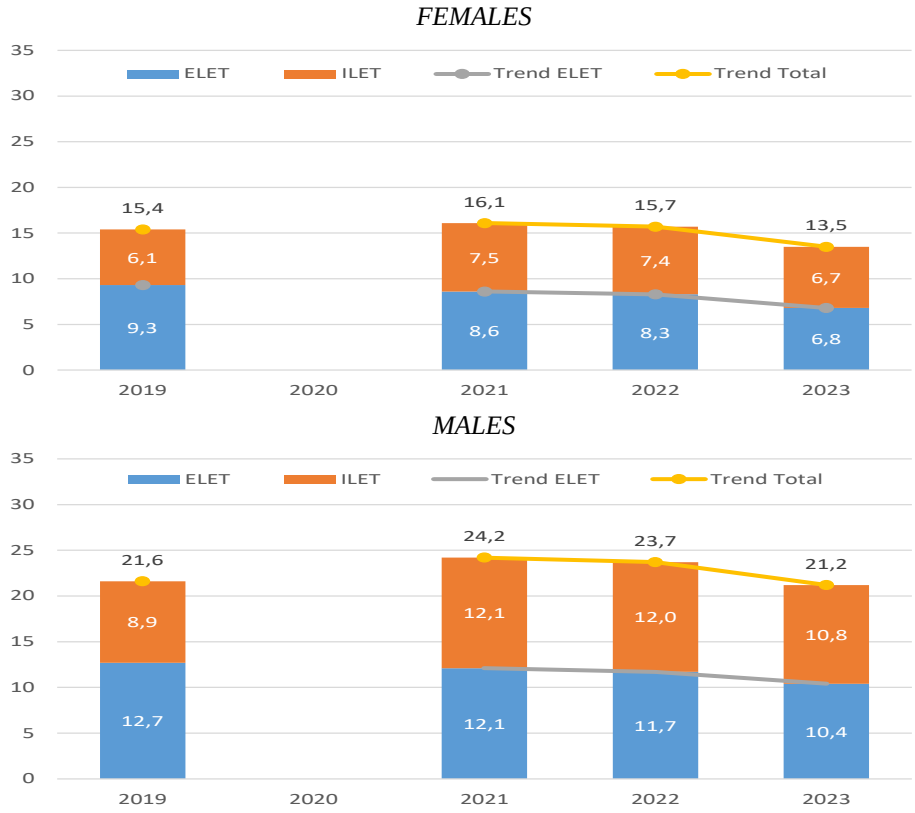


The share of overall school leaving in scholastic year 2022/2023 in Italy was 1.2 percentage points lower (17.4%) than in 2018/2019 (18.6%). This data clearly reflects the dual impact of recent educational shifts: on the one hand, the effects of

distance learning and school closures are discernible within INVALSI assessments (ILET); on the other, the influence of ministerial guidelines on Grade 13 examination procedures (leading to fewer failures) is evident in LFS data (ELET).

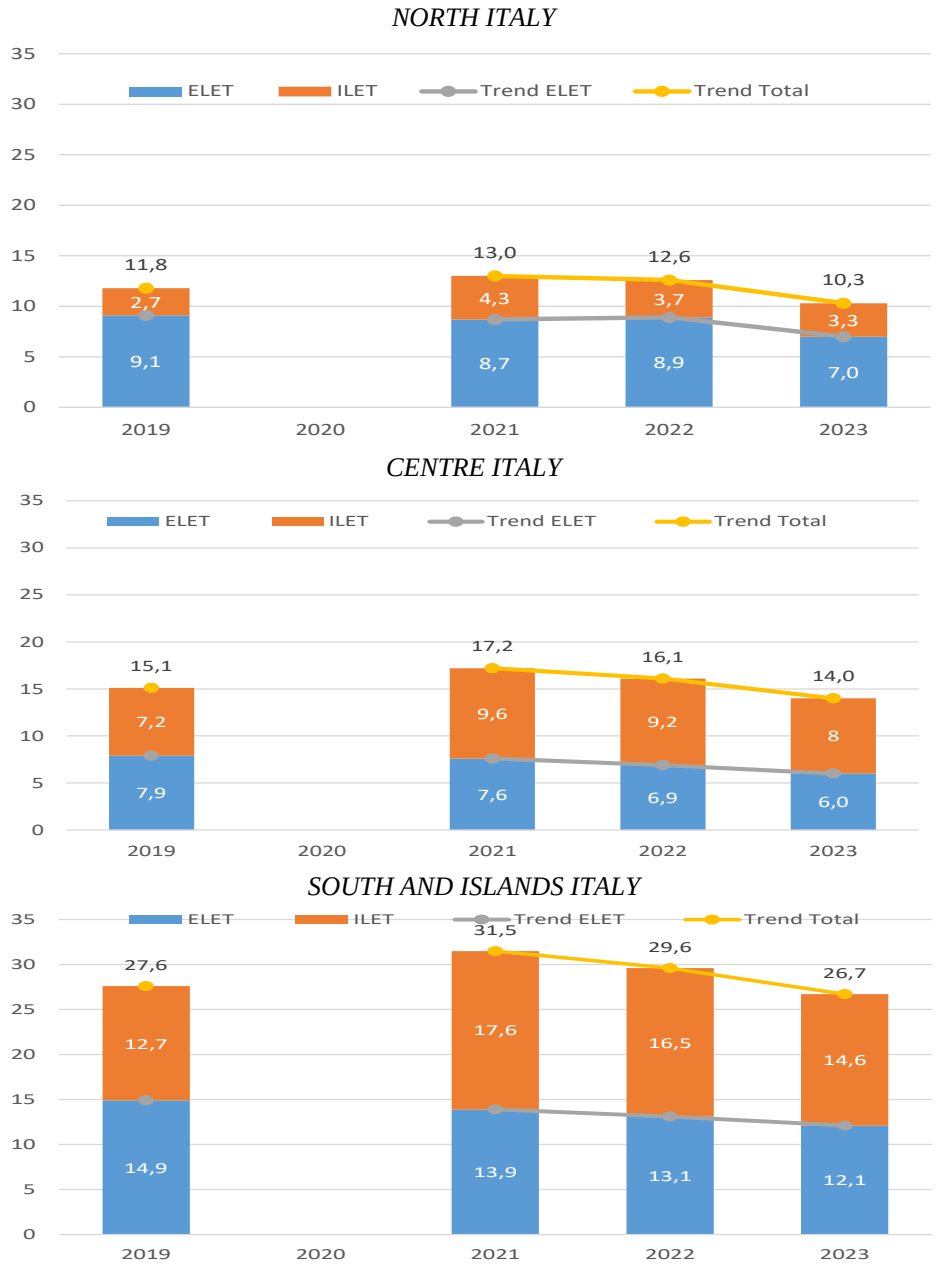
Overall school leaving is higher among males than among females. In scholastic year 2022/2023 one in every five young male people drop out (Figure 2).

Figure 2 – *Proportion of ELET (people 17-20 years old) and ILET (students in grade 13) in two scholastic years for males and females (2018/2019 – 2022/2023) – Source: Istat LFS and Invalsi.*



The overall school dropout rate is decreasing across the country, mainly because the ELET school dropout rate is decreasing. However, the ILET school dropout rate is increasing. The difference between northern, central and southern Italy remains very high (Figure 3). In the north, the ELET school dropout rate remains higher than the ILET rate, while in the centre and south, the ILET school dropout rate is higher than the ELET rate.

Figure 3 – *Proportion of ELET (people 17-20 years old) and ILET (students in grade 13) in two scholastic years for geographic areas (2018/2019 – 2022/2023) – Source: Istat LFS and Invalsi.*

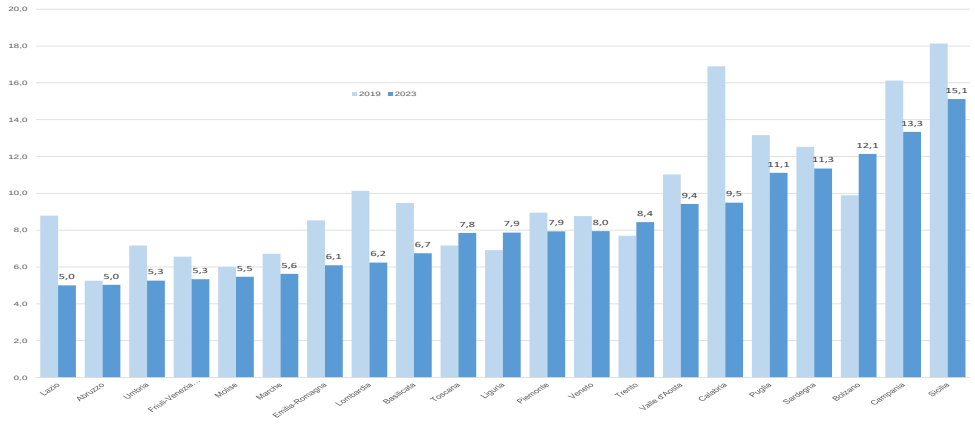


4.1. Regional differences

Both explicit and implicit early school leaving is a phenomenon that mainly concerns students from southern Italy (Figure 4). Despite the continuous improvements in the southern regions, in the school year 2022/2023 the percentage of 17-20 year olds who dropped out of school remains very high (over 10%) in Sicilia (15,1%, they were 18,1% in 2018/2019), Campania (13,3%, they were 16,1% in 2018/2019%) and Sardegna (11,3%, they were 12,5% in 2018/2019).

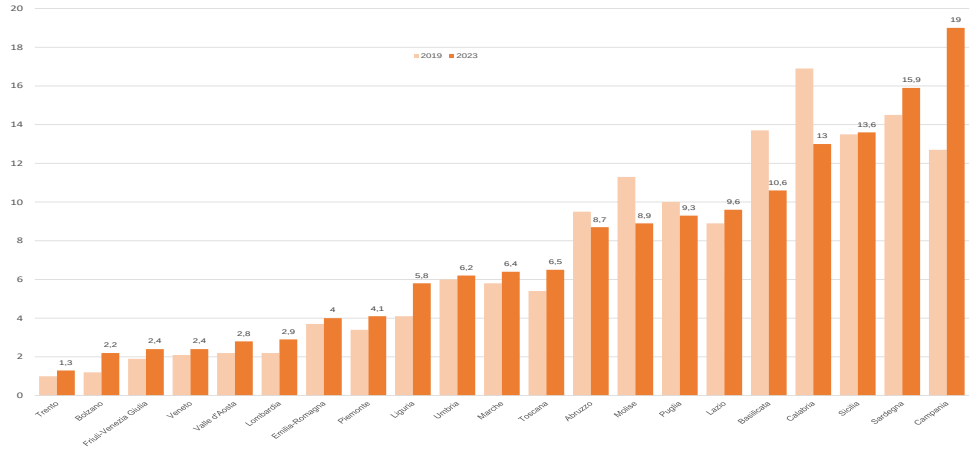
The regions where the phenomenon is less serious are Abruzzo and Lazio (5% in the school year 2022/2023), Umbria and Friuli Venezia Giulia (5,3%).

Figure 4 – *Proportion of ELET (people 17-20 years old) in two scholastic years for regions (2018/2019 and 2022/2023) – Source: Istat LFS.*



The difference in terms of implicit dispersion (ILET) between regions is very large since, in the 2018-19 school year, it changes from 1% in Province of Trento to 16.9% in Calabria and the gap increases in the 2022-23 school year, changing from 1.3% in Province of Trento to 15,9% in Sardegna maintaining a territorial characteristic over time, that is, stronger in the South and Islands and less in the North (Figure 5).

Figure 5 – *Proportion of ILET (students in grade 13) in two scholastic years for regions (2018/2019 and 2022/2023) – Source: Invalsi.*



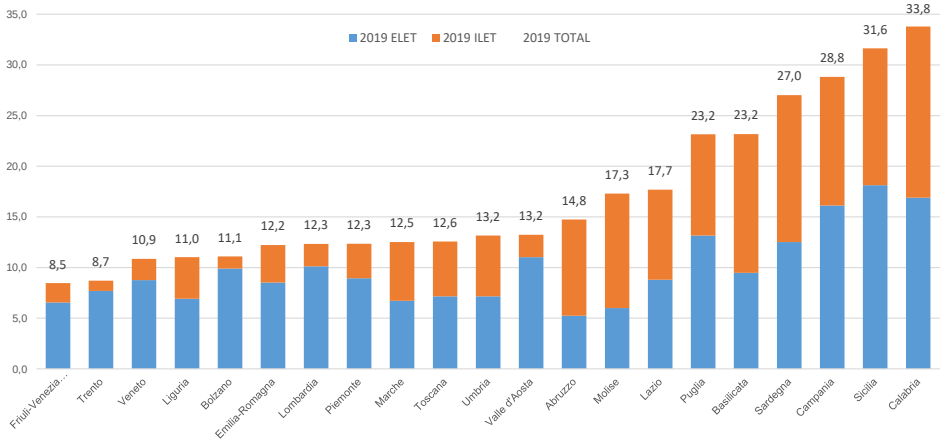
Total dispersion, composed of ELET and ILET added together (Figure 6), goes from the lowest value of 8.5% in Friuli Venezia Giulia and the highest value 33.8% in Calabria in the 2018/2019 school year to 7.7% in Friuli Venezia Giulia and 32.3% in Campania in the 2022/2023 school year.

4.2Methodological challenges

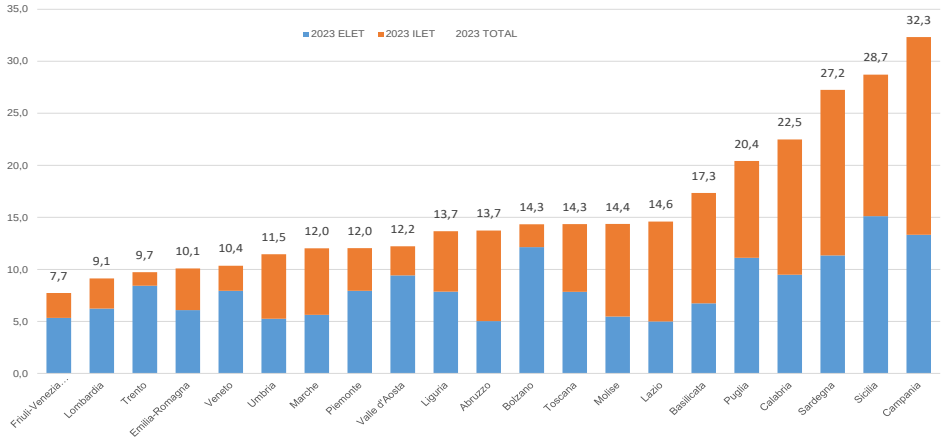
Even at the macro level, the use of data from different sources presents problems. First of all: are we talking about the same population? The two data sources are constructed with different time frames. Sample population for LFS refers to the calendar year; the survey is continuous (data collection takes place over the entire calendar year) and the age classes are defined. The population surveyed by INVALSI tests is defined by school year. Students responding to the Invalsi test in grade 13 are between 17 and 21 years old.

Figure 6 – *Proportion of ELET (people 17-20 years old) and ILET (students in grade 13) in two scholastic years for regions (2018/2019 and 2022/2023) – Source: Istat LFS and Invalsi.*

SCHOOL YEAR 2018-19



SCHOOL YEAR 2022-23



Some students are not surveyed in Invalsi test. In fact, some students do not participate in the Invalsi tests because they are not present at school on the day of test; some students do not participate because they are enrolled in educational courses that do not participate in the tests (IFP courses of vocational training).

Population in LFS is sample-based and therefore the level of territorial disaggregation of results cannot go too deep: estimates are produced down to the level of regions.

Timeliness of the publication of the estimates is different. The Invalsi data for a school year are available in the summer (e.g. for the school year 2022/2023 the data are available in the summer of 2023) whereas LFS data for one year are available in March of the following year (e.g. for the year 2023 the data are available in March 2024).

Comparing data from the 2 sources for different classifications is also difficult: for example, Invalsi's ESCS - Economic Social Cultural Status index is not reproducible with LFS data (a proxy estimate would be possible). Also INVALSI definition of citizenship (native, first generation foreign, second generation) is not reproducible with LFS data (a proxy estimate would be possible).

5. Conclusion

The decline in the ELET indicator can lead to very positive conclusions about academic skills and the education system in general. This makes it necessary to include a component such as implicit dropout (ILET) in the calculation of the school dropout rate. For example, the use of both indicators has highlighted the effects of the pandemic on the education system. Furthermore, their combined use can provide a general indicator of differences between territories and their results over time. However, each of the two indicators must also be analysed individually. In fact, from a policy perspective, the strategies needed to prevent formal school leaving differ substantially from those aimed at addressing skills deficits among graduates.

Being able to measure the overall phenomenon of drop out offers schools and policy makers essential information to envision assistance interventions for students who experience their academic career with difficulty (OECD, 2012). The INVALSI data not only capture the final data on dispersion, but allow it to be diagnosed early, so as to make it possible to carry out an enhancement intervention during the training process (González-Rodríguez, 2019).

On the other hand, LFS data make it possible to monitor early school leaving once it has occurred. Comparing and combining the two data sources can therefore provide useful information for the adoption of implicit and explicit early school leaving prevention measures (Batini *et al.*, 2019).

In this data, it is possible to recognise the impact of distance learning and school closures (on Invalsi data), but also the impact of ministerial guidelines (in LFS data) for the conduct of examinations for Grade 13 (fewer failures).

Prompt action to help, which intervenes on the problem from its onset, can have a greater probability of success and in a few years lead to a significant reduction in this phenomenon in Italian schools.

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Barbara BALDAZZI, ISTAT, baldazzi@istat.it
Patrizia FALZETTI, INVALSI, patrizia.falzetti@invalsi.it
Paola GIANGIACOMO, INVALSI, paola.giangiacomo@invalsi.it