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ABSTRACT

Stuck at a Crossroads? The Duration of the Italian School-To-Work Transition*

There is a long period from completing studies to finding a permanent or temporary (but at least satisfactory) job in all European countries, especially in Mediterranean countries, including Italy. This paper aims to study the determinants of this duration and measure them, for the first time in a systematic way, in the case of Italy. This paper provides several measures of duration, including education level and other criteria. Furthermore, it attempts to identify the main determinants of the long Italian transition, both at a macroeconomic and an individual level. It tests for omitted heterogeneity of those who are stuck at this important crossroads in their life within the context of parametric survival models. The average duration of the school-to-work transition for young people aged 18–34 years was 2.88 years (or 34.56 months) in 2017. A shorter duration was found for the highly educated; they found a job on average 46 months earlier than those with compulsory education. At a macroeconomic level, the duration over the years 2004–2017 was inversely related to spending in the labour market policy and in education, GDP growth, and the degree of trade-union density; however, it was directly related to the proportion of temporary contracts. At the individual level, being a woman, a migrant, or living in a densely populated area in the South are the risk factors for remaining stuck in the transition. After correcting for omitted heterogeneity, there is clear evidence of positive duration dependence. Positive duration dependence suggests that focusing on education and labour policy, rather than labour flexibility, is the best way to smooth the transition. This study develops our understanding of the Italian STWT regime by providing new and detailed evidence of its duration and by studying its determinants.

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1. Introduction

The school-to-work transition (STWT) is the period from the completion of education until the attainment of a permanent, or even temporary, job that is fully satisfactory (ILO, 2020). Within the EU, Italy exhibits the longest STWT duration. The causes of this outcome are manifold and can be ascribed mainly to the high degree of rigidity in the labour market, despite (or perhaps also because of) the so-called "two-tier reforms"[1], and to the sequential nature of the education system, which puts off the development of work-related skills to the period after education (Pastore, 2019). While a notable amount of the literature has analysed the difficulties of young people in the labour market by looking at the youth unemployment rate (YUR) and at the relative disadvantage (RD) – that is the ratio between the YUR and the adult unemployment rate – only very few studies have attempted to measure the most relevant feature of the STWT, namely its duration (Pastore, 2015a; Raffe, 2008; Ryan, 2001).

The aim of this paper is twofold. We aim, first, to provide a more realistic measure of the duration of the STWT in Italy since, as we will show later, previous attempts at measurement have tended to dramatically underrate it (Eurostat, 2012). Second, we aim to identify the determinants of such long durations in Italy. They are mainly ascribable to the characteristics of the labour market and the education system, on the one hand, and to the personal characteristics of individuals, on the other hand.

For our econometric analysis, we use the EU-SILC (European Union Survey on Income and Living Condition) data bank, the main European statistical source on income and living conditions at the individual and household level. In particular, the EU-SILC contains two retrospective questions, asking respondents when they completed their studies and when they attained their first "regular" job (according to the definition provided in the data section). This information allows us to measure accurately the duration of STWT. We show that the EU-SILC is the best statistical source of information for achieving the aims of our empirical analysis, although it still suffers from some shortcomings, as does any statistical source of information.

Moreover, we compute the series of the average duration of the STWT in the country from 2004 to 2017 and regress them on a number of institutional and policy variables that might correlate with the evolution of the duration of the transition over time, such as GDP growth, the degree of employment-protection legislation, spending related to education and labour-market policy, trade-union density, etc.

As a third step, we study the determinants of the duration of the STWT at an individual level by means of survival models of the probability of finding a job conditional on the duration. We find that being a woman, a migrant, or living in a densely populated area of the South represent the risk factors. We test for omitted heterogeneity of the sample of those who are stuck at this important crossroads in their life. Once we have corrected for omitted heterogeneity, we find evidence of positive duration dependence. In other words, those who experience the longest duration have employability characteristics inferior to the average, which suggests the need to fine-tune and personalize education and labour policy, rather than increasing labour market flexibility as a policy to shorten the transition.

Our analysis integrates and develops the analysis of the Italian STWT regime, which has already been characterized as essentially extremely slow (Pastore, 2019). We contribute to the analysis of the Italian model by providing new and detailed evidence and by looking at the specific determinants at an individual and macroeconomic level.

The structure of the paper is as follows. In the next section, we examine the existing measures for the duration of the STWT in Italy, while in section 3 we detail our methodology and data. Section 4 discusses the main findings of the macro- and micro-analyses, and section 5 provides conclusions.

2. The state of the art

The most relevant existing contribution regarding the duration of the STWT has been made by Eurostat, which, in 2012, used the ad hoc 2010 module of the Labour Force Survey to measure it. Based on this study, the duration was very different across the EU; Italy was second only to Greece as ranked by the longest duration for those with tertiary education (9 months), but only seventh for high school graduates (13.5 months). However, in that study, Eurostat identified the end of the transition as any "first significant job", even if it was of only for three months, and, therefore, not necessarily a permanent or regular job. The wide spread of temporary work in many EU countries, especially South Mediterranean countries, has caused in many cases only brief interruptions in the unemployment status without really completing the transition to a satisfactory job, not to mention a permanent one, which is in many cases the only satisfactory job for many young people. Notably, according to a recent ILO (2020) statement, we should consider the STWT completed only if the job found is permanent or, if temporary, is considered at least satisfactory by the young person.

The Eurostat results were very different from those found some years earlier by Quintini *et al.* (2007), who reported that, in Italy, the duration of the transition to a permanent job was about 44.8 months, almost four times the Eurostat estimate.

In recent years, researchers have started studying the STWT and its critical aspects. Most of these studies have focused their analysis on university graduates only (Biggeri *et al.*, 2001; Salas-Velasco, 2007). Other studies have paid attention to specific aspects connected with the transition. For example, Brunetti and Corsini (2019) analysed European countries by looking at the effect on the duration of the STWT of vocational studies, while Berloffa *et al.* (2019) focused on gender inequality in the first three years of the STWT experience. Another relevant contribution to the literature is from Manacorda *et al.* (2017), who examined the differences in the STWT experiences connected with the attainment of the first job and of the first stable job for a selection of about 30 developing countries. More recently, with specific reference to the Italian context, more attention has been paid to the relevant role of traineeships (Ghirelli *et al.*, 2019) and of on-the-job training [Cappellini *et al.*, 2019; Pastore and Pompili, 2019 (and references therein)] in reducing the STWT duration, while Spekesser *et al.* (2019) underlined, through an analysis on aggregate data, the importance of active labour-market policy in providing these skills.

In this paper, for the first time, we examine the temporal dimension of the STWT, in a systematic way, by analysing the changes that have occurred in its duration over 14 years (2004–2017). We focus on Italy, which is one of the EU countries with the longest duration, and include in the analysis all young people, regardless of their level of education. However, as the STWT is affected by different levels of education attained (Bradley and Nguyen, 2003), we distinguish in our analysis low (with only compulsory school or below), medium (high/secondary school), and high education (tertiary education).

3. Methodology and data

The analysis of the STWT duration is based on EU-SILC data, which contains two retrospective questions asking respondents the age when they attained the highest level of education (Question: *How old were you when you finished your continuous full-time education?*) and the age at which they began their first regular job (Question: *At what age did you begin your first regular job?)*. The latter is defined as any paid work activity that has lasted for at least six months, including temporary work, but excluding seasonal and occasional work.

As with any other type of data, using the EU-SILC data bank for this analysis has advantages and shortcomings. We believe that the advantages overcome the shortcomings and that the EU-SILC remains the best source of information when looking at EU countries from a comparative perspective. The main advantage is that, through the above-mentioned retrospective questions, we have a clear and definite measure of the duration for all individuals in a way that is fully comparable across countries. The other important statistical source on labour condition of individuals, the Labour Force Survey, asks respondents only the number of years they have worked in the current job. Therefore, it does not allow the investigator to reconstruct the duration of the STWT for individuals who are not in their first job. Furthermore, since 2004, the EU-SILC data bank has allowed users to construct comparable measures of STWT duration.

Moreover, the EU-SILC questionnaire is rich in information regarding young people's social and economic conditions. Such information is extremely useful in detecting the possible sources of personal disadvantage. Furthermore, it collects information on the employment status during this difficult period: whether they are still studying or not; whether they are student workers; etc. We may also identify the evolution of the duration of the STWT before, during, and after the recent economic crisis. This allows us to compare different economic conditions. Third, we have a relatively large number of young people in the sample, which allows us to disentangle our indicators along different dimensions: age; education attainment level; etc.

On the other hand, there are also some shortcomings. EU-SILC does not provide information on the province or region of residence, but only on the macro-region, so-called NUTS1. The data for the tertiary educated neither allows us to distinguish between bachelor's (three-year) and master's (two-year) degrees, nor to control for the field of study of individuals (e.g. arts versus STEM fields). The field of study is not available for high-school diploma holders either. In order to assess the actual duration of

the STWT, we should also include the time needed to obtain a university degree beyond the curricular years. In Italy, this is one of the longest worldwide, especially in terms of expected value at the beginning of the university course. According to data from the Ministry of Education (www.miur.gov.it), about 50% of students enrolling at university drop out without completing their course programme, and many remain enrolled for years with little hope of completing their studies; sometimes, they succeed only after a very long period of time. About 40% of graduates obtain a diploma with a delay of between one and 10 years additional to the three- or two-year curriculum. According to AlmaLaurea data, the average age of graduation for students starting university at 18 is 24 (for those who have started the three-year programme) and 26.1 years for those who have also undertaken specialist studies (Aina *et al.*, 2013, 2015; Pastore, 2019). This is due to the high cost of tertiary education, which, in turn, depends on the poor preparation of the university system for the transition to a mass university. Another important factor explaining the delay of many students in attaining a university degree consists of the inability of school education to give students an adequate background for university education. Furthermore, many students do not attend the courses and the programmes for many exams are too wide, especially for the so-called rock exams, which are almost impossible to pass due to, among other reasons, the teaching load in excess of that provided by the relevant training credits (Pastore, 2019). In this paper, we focus only on the time from the end of studies to the attainment of a stable job, since, unfortunately, information on education is not sufficiently detailed in the EU-SILC data bank. Last but not least, the EU-SILC does not give us specific information on the work experience gained during the transition (number of placements or their duration).

We focus in this paper on all young people who, at the time of interview, were 18–34 years-old, excluding from the analysis the permanently disabled and those who had not finished their studies at the time of the interview.

The analysis was developed in two steps. First, we identified and calculated different measures of the mean duration of the transition; second, we attempted to identify, on the one hand, the factors that at a macroeconomic level affect the STWT duration in Italy from 2004 to 2017 and, on the other hand, how personal characteristics affect these durations.

3.1 Measuring the average length of completed and incomplete transitions

In step one, we computed different measures of the duration of the STWT. The first measure included only those who had completed the transition at the time of the interview. The second measure added to the analysis also those individuals who had not completed the transition at the time of the interview (incomplete transition). In this latter case, the duration of the transition corresponded to the time from the completion of studies until the time of the interview, including also those who will never complete them (inactive).

Furthermore, the analysis distinguished individuals by their level of education attainment (compulsory education or below, high/secondary school, and university) and by the type of job contract (temporary vs indefinite contract) [2].

3.2 The macroeconomic determinants of the duration

In this section, we examine the effects of macroeconomic factors on the STWT duration through a time-series model using, as the dependent variable, the evolution of the average duration of the STWT from 2004 to 2017. The economic literature recognizes the strong effect exerted by the education system and the mix of institutions and policy tools forming the so-called STWT regime. This latter includes public and private employment services, job-placement services in the education system, the degree of integration between schools and universities, on the one hand, and the labour market, on the other hand. Training institutions, employment-protection legislation, trade-union density, and entrepreneurial organizations also play a role (Hadjivassiliou *et al.*, 2018; Pastore, 2015a, 2018; Paul and Walther, 2007; Raffe, 2008; Ryan, 2001).

The statistical model that we utilized for our estimation is:

$$STWT_t = \alpha + \beta \sum_{x=1}^{n} X_t^x + \varepsilon_t \qquad (1)$$

where *X* is proxied by the statistical series available[3]:

- degree of labour-market rigidity as measured by the employment protection from individual and collective dismissals (epid and epcd, respectively);
- trade-union density (TUD);
- share of temporary contracts for total employment among the youth population (note that, in the models for the low and medium educated, we refer to the 18–24 age group, while for the tertiary educated, we refer to the 25–34 age group;
- tax wedge for a single person as a share of the average earnings (TW);
- public spending in active and passive labour-market policy as a percentage of GDP (ALMP and PLMP, respectively), divided by the number of young benefit recipients;
- GPD level and growth (GDP and GDP_gr) as proxies of the business cycle;
- government spending in education as a share of total government spending (exp_ed) as a proxy of the quality of the education system.

Since active and passive labour-market policy and the business cycle produce their effect with a certain delay on the labour market, we lagged them twice. For a more detailed definition of the variables and some of the descriptive statistics, see the Table AI in Appendix A.

3.3 The individual level determinants of the duration

The list of covariates at an individual level is reported in Table AII in Appendix A, together with some descriptive statistics: migration status; gender; age group; area of residence; and degree of urbanization of the place of residence. Migrants accounted for 16.49% of the entire population, of which only 5% came from another EU country. Interestingly, women represented a high share of the high educated (about 60%). Finally, most individuals were more than 24 years old (79%), as the sample excluded those who were still studying (see Table AII in Appendix A).

The analysis of duration of STWT required an estimation of the time to an event of interest; in this case, the exit from the STWT, denoting that the individual had got a job. For this reason, ordinary least squares (OLS) models are not applicable because residuals are not normally distributed and the data are right censored for the individuals that, at the end of the period of observation, are still not working (Kleinbaum and Mitchel, 2012; Miller, 1997). Therefore, we used duration models, based on survival functions, which show the probability that the duration of a certain status is greater than a fixed number of months.

These models have been widely used in studies of labour economics to understand better the determinants and dynamics of job search and unemployment spells (for a survey paper on this topic, see Kiefer, 1988; for a handbook treatment, see Cleves *et al.*, 2016).

We suspect the presence of omitted heterogeneity, as explained in more detail below, and, consequently, we used parametric survival models, which are the only ones that allow us to test for omitted heterogeneity. We may, in principle, refer to different theoretical distributions (Gompertz, the exponential, the lognormal, the log-logistic, and generalized gamma). Among them, the Weibull distribution swiftly appeared as the most appropriate, in our specific case, on the basis of the empirical data path described by the Kaplan–Meier functions and the Akaike information criterion (AIC) and Bayesian information criterion (BIC) (Akaike, 1974):

$$h(t) = p\lambda t^{p-1} \qquad (2)$$
$$S(t) = \exp(-\lambda t^p) \qquad (3)$$

where $h(t)$ is the hazard function and represents the instantaneous rate of failure, which can be interpreted as the probability that the event of failure occurs in a given interval (in our case, it is a positive episode, because failure happens when the individual gets a job), conditional upon the subject having survived up to the beginning of this interval. $S(t)$ is the survivor function, measuring the probability of surviving beyond the time t. λ is a scale parameter, while p represents the shape parameter and, therefore, is a measure of duration dependence. Values less than 1 for the p-parameter denote the presence of negative duration dependence, which means that the hazard rate decreases over time. In the application to the STWT, this shows that the probability of exit to a job decreases over time. Values of p greater than 1 denote an increase in the probability of exit from the STWT over time.

Finally, we corrected for possible unobserved heterogeneity, which occurs when individuals differ not only in terms of observed characteristics, but also of skills, attitudes, and propensities that only rarely are observed and measured (Cappellari and Jenkins, 2008). Ignoring unobserved heterogeneity would lead to a selection effect that leads to over-estimating the degree of negative duration dependence in the baseline hazard function and to under-estimating the degree of positive duration dependence (Heckman and Borjas, 1980; for a more recent assessment, see Arellano, 2003). Even in this case, we have to choose between the gamma and the inverse-Gaussian distributions. The main difference between them is that the gamma implies a decrease in the hazard ratio with time, while with the inverse-Gaussian the effect does not completely diminish with time. Following Jenkins (2005), we introduced it as an unobservable multiplicative effect, α, on the hazard function:

$$h(t|\alpha) = \alpha h(t) \tag{4}$$

where α is a random positive quantity and, for model identifiability, it is assumed to have mean 1 and variance θ.

In particular, specifying the inverse-Gaussian, the frailty survival model in terms of the no frailty survivor function, $S(t)$, is:

$$S_\theta(t) = \left\{ \frac{1}{\theta} \left(1 - [1 - 2\theta \log\{S(t)\}]^{1/2} \right) \right\} \tag{5}$$

As $\lim_{\theta \to 0} S_\theta(t) = S(t)$, regardless of the choice of the frailty distribution, the frailty model reduces to $S(t)$ in case of the absence of heterogeneity. The assessment of omitted heterogeneity is based on an estimate of the variance of the frailties and on a likelihood-ratio test of the null hypothesis that this variance is zero. In case of frailty, the unobserved individuals' characteristics will affect the probability of exit from the STWT, so that lower-motivated and lower-skilled individuals will tend to stay longer in the STWT, giving evidence of apparent negative dependence duration. Therefore, only after correcting for unobserved heterogeneity can we estimate the actual type of duration dependence. This is an extremely important issue because, in case of evidence of negative duration dependence, this means that the probability of exiting the STWT reduces as time increases. The economic explanation is that it is more difficult for an individual to find a job because of demand- and supply-side factors. From the supply side, time tends to deteriorate the human capital of job seekers; from the demand side, employers attach a stigma to longer duration and tend to interpret a prolonged period in unemployment as a signal of lower productivity, skill, and motivation. Furthermore, the longer the time spent in unemployment, the greater the discouragement can be, which may persuade individuals to give up their job search. In this case, following van den Berg and van Ours (1999), policy should simply increase the degree of labour-market flexibility. This is in line with the assumption that the probability of

remaining stuck is constant across individuals as if the labour market were driven by a Markov process. In this case, the only way to reduce negative duration dependence would be to increase the chances of finding a job for everyone, by increasing the average job-finding rate.

Conversely, evidence of positive duration dependence suggests that the lower job finding rate is not distributed randomly, but based on the lower personal talent, motivation, and skill of job seekers who remain stuck in unemployment. This has important policy implications, because policy makers should act in order to improve young people's employability with fine-tuned labour and education policy, rather than by increased labour-market flexibility. The latter would not facilitate the job search of the least motivated and skilled, but conversely of the already most motivated and skilled.

4. Results

4.1 Descriptive analysis

We analysed complete and incomplete transitions. By complete transition, we refer to the individuals that, at the time of the interview, had found a regular job. Incomplete transitions, instead, include also those young people that, at the time of the interview, had not completed the transition. For them, the duration was set to end at the time of interview.

Among European countries, Italy shows the lowest share of young people with tertiary education. In 2017, according to the Eurostat on-line database, the share of young people aged 25-34 with tertiary education ranged from 26% in Italy to 55% in Lithuania. However, looking at the sample of young people analysed in this paper, aged 18-34 years, in the last decade the share of high educated increased from 13.36% in 2006 to 20.67% in 2017. The share of those who already worked during their studies has moved in the opposite direction. Due probably to the economic crisis, they decreased from 31% in 2006 to 16.43% in 2017 and reduced especially among students enrolled at the university or above (Table I).

[Table I about here]

The overall mean for complete and incomplete duration increased from 3.65 years in 2006, a time of economic expansion, to 5.48 years in 2017, after the economic and financial crisis, with a worrying increase also in the variability of durations (Table II). However, the scenario arising when we consider in the analysis only those who had not completed the transition at the time of interview was severe. Indeed, the mean duration in this case increased from 4.70 in 2006 to 8.93 in 2017, a factor of about 2. Moreover, the duration reached a maximum of 12.87 years on average for the low educated in 2017 from 6.93 years in 2006.

[Table II about here]

Clearly, these outcomes include a consistent share of the population that has a high probability of leaving the labour force altogether forever, or that has never actively searched for a job. Inactivity and NEET (not in education, employment, or training) status still significantly affect the Italian youth population, also as a consequence of increasing discouragement due to the economic crisis (De Luca *et al.*, 2019)[4].

Figure 1 reports the Kaplan–Meier survival functions for completed and incomplete durations. This allows us to examine the overall length of the process. The largest share of university graduates found a regular job in about five years (83%), slightly less than in 2011 (89%), which had already shown a consistent worsening in comparison to 2006 (95%). The worsening that occurred in these years for high-school graduates was a little less; after 5 years, 70% of individuals had found a regular job in 2017, compared to 75% both in 2006 and in 2011. The most dramatic scenario concerned those with compulsory education or below. In 2006, 60% of the latter found a stable job after five years. This share fell to 57% in 2011 and to 39% in 2017.

[Figure 1 about here]

In 2017, overall, 10 years after the completion of studies, 17% of young people had still not found a job and, probably, would never do so: after 12 years, the probability of finding a regular job becomes almost zero. When examining the level of education, the figures for those who had still not found a job after 10 years were 35% among the low educated, but only 15% and 12% among the medium and high educated, respectively. The Kaplan–Meier survival curves tend to stabilize after 15 years for the low educated, 10 years for the medium educated, and seven years for the high educated. It is apparent that the gap over time between the performance of young people – as shown in the Kaplan–Meier survival curves – by level of education dramatically increased and, for the low educated, the probability of remaining outside the labour market after five years from study completion was very high. In fact, as already noted, after all this time, only 39% of young people with compulsory education or below had completed the transition, compared to 70% of the medium educated and 20% of the high educated. The situation was slightly better in 2011 and 2006. Those with compulsory education almost all found a job within 15 years in 2017, and in a slightly shorter time in previous years.

Overall, this confirms that the majority of young people required an extremely long period of time to find a regular job. After a certain period, it is extremely likely that those who had still not completed the transition would never do so.

Splitting the analysis by gender (Figure 2), while no significant differences arose in respect to the completed transitions, when we examine the incomplete transitions, a strong gender gap is apparent, especially among the low educated. This finding confirms that extremely long transitions are associated with low educated women, but these longer transitions probably will never be completed, leading them to inactivity.

[Figure 2 about here]

4.2 Macro-factors

The analysis of the determinants of the duration of the STWT should involve the institutions acting on the labour market and affecting the ability of new entrants to smoothly move from education to the world of work, namely the educational system itself and its links to the labour market, the legal arrangements in the labour market, the active and passive labour policy, and all the other factors that can affect this difficult step of individuals' life-cycle (Pastore, 2015a).

Even though the time of observation is short (2004–2017), and therefore only for explorative purposes, several interesting preliminary findings can be brought to the fore.

Figure 3 reports the trend of the mean (completed) durations of the STWT by level of education. The economic crisis produced its effect only after 2011, especially for the low educated, which, in recent years, has significantly increased their gap compared to their more highly educated peers. However, comparing the trend of the mean duration of completed transitions with the trend observed for the macroeconomic variables (Figure 4), from 2006 to 2009, there was a consistent decrease in the duration of the STWT, followed by three years of almost stationary duration. Unfortunately, the same trend was seen also for government spending in education and in active labour-market policy. Consequently, due also to the concomitant economic crisis, in subsequent years, there was a sudden rise of the mean durations. Overall, spending in education decreased from 9.4% of total Government spending in 2004 to 7.8% in 2017 (Table AI in Appendix A). Total spending as a result of active labour-market policy on GPD divided by the number of young benefit recipients followed a similar trend (from 27.7 in 2004 to 22.1 in 2017); it substantially increased only in 2015. As this variable was analysed with a two-year delay, its increase was registered around 2013, and could therefore be due to the introduction of the European Youth Guarantee Fund, which in Italy dates back to the first months of 2014 (Pastore, 2015b, 2020).

[Figures 3 and 4 about here]

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Looking at the right side of Figure 3 (the figure has been split in two panels to increase readability), we can see that the increase in the mean duration was accompanied by a similar path for the tax wedge, the degree of trade-union density, and the share of temporary employees.

In order to identify factors strongly correlated with the duration of the STWT in these 14 years, we examined pairwise correlations[5] and then estimated them using OLS regression. We identified two main groups of variables: on the one side, tax wedge, GDP, PLMP, and share of temporary workers, which were strongly and directly correlated with each other and with the duration; on the other side, spending in education, ALMP, and employment protection from dismissals, which were strongly and directly correlated with each other and inversely correlated with the first group of variables. The duration showed a significant and inverse correlation only with trade-union density and GDP.

The estimates of the macroeconomic determinants of the STWT average durations are reported in Table III column 1 reports also results with student workers; however, the results were similar. The high correlation among some covariates and the low number of statistical time units involved in the analysis suggested introducing in the model only a few covariates. We found an inverse correlation between spending in education and the mean durations, while spending in ALMP and GDP seemed to correlate directly only with the mean duration of the subset, which excluded student-workers. Having begun to work before finishing their studies, the latter did not benefit from them. However, when examining different education levels, the increasing spread of temporary employment appeared to be directly related to the STWT duration only for the low educated, while spending in ALMP seemed to help especially young people with a medium level of education in finding a job.

[Table III about here]

4.3. Individual-level determinants

Finally, Table IV shows results of estimates of survival models. The reported figures represent hazard ratios and were obtained by taking the exponential of the estimated coefficient[6]. A value greater than 1 denotes that an increase in the covariate correlates with an increase in the hazard rate. This implies an increase in the instantaneous job finding at every duration and, at the same time, a reduction in the duration. Conversely, figures smaller than 1 mean a reduction of the hazard rate, i.e. a longer survivor time, associated to that covariate. Longer durations of the STWT were associated with women and migrants, which were typically some of the most vulnerable groups. There was a gender gap in the duration of the transition that reduced with increasing education. In other words, although women experienced longer durations than men, nevertheless, their gap was smaller among the highly educated. This type of return to education contributes to explaining the greater investment in education of women, noted in much of the literature (see, among others, Manning and Swaffield, 2008).

[Table IV about here]

Migrant status represented a risk factor only for those who were born in an extra-EU country. Conversely, being born in another EU country bores a penalty only for the high educated. Examining the area of residence, being born in the South of Italy represented a strong risk factor and the gap was higher, especially in comparison to those living in the North. Indeed, the probability of exiting from the STWT in the North was about 3.3 times higher, and in the Centre was 2 time higher than in the South. Moreover, the higher level of education, instead of reducing, increased the penalty associated with the region of residence. In relative terms, the penalty of living in the South was bigger for the high (3.7) rather than for the low educated (2.1). This suggests that there was a penalty associated to having earned the university degree in the South of Italy.

The higher degree of urbanization of the place of residence was associated also with a penalty, probably because, in small towns, the network of friends makes it easier for young people to find a job. However, this type of penalty was statistically significant only for the low and medium educated. These findings suggested controlling for the interaction of macro-region and the degree of urbanization. Examining the coefficients of these variables, we can see that the densely populated areas in the North and in the Centre correlated with greater job opportunities and the same was also true for the small towns in the Centre. For the low educated, living in a city in the North increased the probability of exiting the STWT by 2.4 times. This probability increased by as much as 5.0 times for cities in the Centre.

Finally, living with parents, a very common phenomenon in Italy, observed many times (see, among others, Giannelli and Monfardini, 2003; Manacorda and Moretti, 2006), was associated with a penalty in terms of the duration of the STWT, regardless of the level of education, and this was higher when only one of the two parents were in the household. However, the coefficients for the dummy variables indicating the presence of one or two parents were not statistically different in all the models[7]. The model in the last column of Table IV is a robustness check, including the level of youth unemployment rate for the year when the individual had attained the highest level of education, measured at a macro-regional level, which was the only territorial detail provided in the dataset. This required removing the dummies for the North and Centre and the corresponding interactions with the degree of urbanization. As expected, higher levels of unemployment correlated with longer durations.

After correcting for frailty, in line with Jenkins (2005), the p parameter of the Weibull function was greater than 1, hence showing the existence of positive duration dependence. This means that the probability of exiting from the STWT increased with time. It is important to note that, before correcting for unobserved heterogeneity, the opposite held true. Therefore, in presence of unobserved heterogeneity, i.e. significant differences among individuals due to their unmeasured skills and attitudes, the probability of finding a job for the lower skilled individuals tended to decrease with time. Only after that we had corrected for this did we find that the probability of finding a job increased with time. This is a comforting result, because it means that the experiences lived through during the period of STWT increased young people's skills and, therefore, the probability of finding a stable job. Moreover,

following van den Berg and van Ours (1999), we imply the following regarding policy prescription: positive duration dependence is associated more with the need for ALMP and education policy rather than with increasing labour market flexibility, in that it suggests that the probability of not getting stuck at the crossroads is not distributed randomly, as in a Markov process, which would require similar skills among individuals, but depends on the omitted heterogeneity of those who remain stuck and, therefore, on their lower level of motivation and skills, which only personalized intervention, rather than an increased degree of labour market flexibility for all, can address.

5. Concluding remarks, discussion, and policy implications

This paper has addressed two related issues. First, it has aimed to provide a more accurate assessment of the actual duration of the STWT in Italy, one of the countries where this is particularly long and hard. To this aim, we used the Italian dataset of the EU-SILC survey. We found that the duration of the STWT was, in fact, much longer than previously believed. The average duration for young people aged 18–34 years, after completing education, equalled 2.88 years (or 34.56 months) in 2017.

A shorter STWT duration was found for the highly educated; they found a job on average 46 months earlier than those with compulsory education, although this duration may still be too long for university graduates, considering that the average time needed to get a university degree is between seven and eight years (84–96) months.

Second, we searched for the determinants of these extremely long durations by regressing them on a number of macroeconomic and individual-level factors. We reconstructed the duration of the STWT in Italy over the entire period covered by the EU-SILC data (2004–2017) and regressed it on a number of aggregate determinants, namely GDP level, GDP growth, spending in active and passive labour policy, spending in education, employment-protection legislation, proportion of temporary employees, level of trade-union density, and tax wedge.

We found that the duration was negatively related to spending in active and passive labour-market policy, spending in education, and the levels of trade-union density. This means that an increase in these variables was associated with a reduction of the STWT duration over time. The same positive effect was associated with levels of GDP and its growth, while the diffusion of temporary contracts seems to have increased the permanence of the STWT, at least for the low educated.

With reference to individual characteristics, besides gender and immigration background, especially from extra-EU countries, the region of residence and the degree of urbanization of the place of residence also strongly affected the hazard rate, highlighting significant differences among young people with the same education level.

Our policy implications are to be taken with caution, considering that we only examined correlations, rather than causal linkages. However, we believe that some of the empirical evidence provided in this paper may be relevant for policy makers.

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University graduates represent an increasing proportion of the Italian population, although less than in other EU and OECD countries. One reason may be the duration of the university-to-work transition. If a young person graduates with a master's degree at 27–28 years of age, she/he may expect to find a regular job at 29–30 years of age on average (a large share of them could reach even 32–33 years of age before finding a job). The consequences of this fact are dramatic in several respects. In the UK, on average, a young person graduates at about 21 years of age and finds a regular job at 21.5 years. At 32–33 years of age, the UK contemporary of a young Italian has already acquired 10 years of work experience and her/his overall human capital is clearly superior to that of an Italian of the same age (for more discussion on this, see Pastore, 2019).

Moreover, if long durations are the consequence of a rigid and sequential STWT regime, this may also explain the low enrolment into higher education and low education attainment, as it dramatically affects the *ex ante* returns to education, on which such decisions are based (Altonji, 1993). *Ex ante* returns equal the *ex post* returns weighed by the probability to achieve them, which is quite low considering the success rate of enrolled students in attaining a university degree (about 0.60%) and of graduates to find a job (in 2017, 85% of the tertiary educated found a job after six years spent in STWT; Pastore, 2019).

Last but not least, since women tend to have the same work aspirations as men, they find themselves in financial situation stable enough to start a family at an age when their fertility is much lower, which partly explains why, in only a few decades, Italy has moved from being a country with one of the highest birth rates to one of the lowest in the EU.

Regarding the macroeconomic factors, we should be cautious in reaching any conclusion, but our correlations suggest that policy makers might obtain important results by increasing spending in education, and passive as well as active labour policy. The emphasis of the debate of many labour economists on the role of labour-market flexibility seems to be ill-placed, considering that increasing the degree of labour flexibility in recent decades has produced little effect – and not always in the expected direction – on the duration of the STWT, while also controlling for the low growth rate of the country. Similar implications regarding the role of education and labour policy versus labour market flexibility can be drawn from the individual-level analysis and in particular the test for omitted heterogeneity of our survival models, which returned a positive coefficient pointing to positive duration dependence.

Future research should involve more countries in the analysis from a comparative perspective and should investigate further relevant aspects connected with youth performance, also including the propensity for inactivity in the analysis. Another relevant research aim that we hope to develop in the future consists of repeating our analysis using data with less shortcomings than the current EU-SILC survey. Information on the region of residence (NUTS2 detail) and more detailed information on the institutional features of the education system are extremely important to understand in greater depth the determinants of such slow transitions. We hope that international organizations invest human and financial resources into building a dataset able to capture the institutional features of educational

systems at an individual and macroeconomic level in order to allow researchers to pinpoint their role in the duration of the transition. This will become increasingly relevant in the future given the impending digital revolution, which will increase the need for greater investment in education to ensure individuals have the new competences required by the labour market and to ensure that more young people remain in education, thus increase the proportion of highly educated individuals. This trend needs to increase in the future, given that long transitions are regularly associated with lower average educational levels.

References

Aina, C., Baici, E., Casalone, G. and Pastore, F. (2013), "Il fuoricorsismo fra falsi miti e realtà", *Economia & Lavoro*, Vol. 47, No. 1, pp. 147-154.

Aina, C., Baici, E., Casalone, G. and Pastore, F. (2015), "Il ritardo alla laurea: Cause, conseguenze e rimedi", *Scuola Democratica*, Vol. 4 No. 2, pp. 273-294.

Akaike, K. (1974), "A new look at the statistical model identification", *IEEE Transactions on Automatic Control*, Vol. 19 No.6, pp. 716—723.

Altonji, J.G. (1993), "The Demand for and Return to Education When Education Outcomes are Uncertain", *Journal of Labor Economics*, Vol. 11 No. 1, pp. 48-83.

Arellano, M. (2003), *Panel Data Econometrics*, Oxford University Press.

Bentolila, S. and Dolado, J. (1994), "Labour Flexibility and Wages: Lessons from Spain", *Economic Policy*, Vol. 9 Issue 18, pp. 53–99.

Bentolilla S., Dolado, J.J. and Le Barbanchon, T. (2012), "Two-Tier Labour Market Reforms in the Great Recession: France vs. Spain", *Economic Journal*, Vol.122 No. 562, pp. F155-F187.

Bentolilla S., Dolado, J.J. and Limeno, J.F. (2008), "Two-Tier Employment Protection Reforms: The Spanish Experience", *CESifo DICE Report*, n. 4.

Berloffa, G., Matteazzi, E., Sandor, A. and Villa, P. (2019), "Gender Inequalities in the Initial Labour Market Experience of Young Europeans", *International Journal of Manpower*, Vol. 40 No.3, pp. 379—397.

Biggeri, L., Bini, M. and Grilli, L. (2001), "The transition from university to work: a multilevel approach to the analysis of the time to obtain the first job", *Journal of the Royal Statistical Society: Series A (Statistics in Society)*, Vol. 164, No. 2, pp. 293-305. doi: 10.1111/1467-985X.00203.

Bradley S. and Nguyen A.N. (2003), The school-to-work-transition, in Johnes G. and Johnes J. (eds.), *International Handbook of Education Economics*, Cheltenham, Edward Elgar.

Brunetti, I. and Corsini, L. (2019), "School-to-Work Transition and Vocational Education: a Comparison across Europe", *International Journal of Manpower*, Vol. 40 No. 8, pp. 1411-1437, https://doi.org/10.1108/IJM-02-2018-0061.

Cappellari, L. and Jenkins, S.P. (2008), "Transitions between unemployment and low pay", in Solomon W.P. and K. Tatsiramos (eds.), *Work, Earnings and Other Aspects of the Employment Relation, Research in Labor Economics*, No. 28, Emerald Group Publishing Limited, pp. 57–79.

Cappellini, E., Maitino, M., Patacchini, V. and Sciclone, N. (2019), "Are traineeships stepping-stones for youth working careers in Italy?", *International Journal of Manpower*, Vol. 40 No. 8, pp. 1389-1410. https://doi.org/10.1108/IJM-03-2018-0099

Cleves, M., Gould, W.W. and Marchenko, Y.V. (2016), *An Introduction to Survival Analysis Using Stata*, Stata Press, Revised Third Edition.

De Luca, G., Mazzocchi, P., Quintano, C. and Rocca, A. (2019), "Italian NEETs in 2005–2016: have the Recent Labour Market Reforms Produced Any Effect?", *CESifo Economic Studies*, Vol. 65 No.2, pp. 154–176.

Eurostat (2012), School-to-work Transition Statistics, Eurostat, Luxembourg.

Giannelli, G. and Monfardini, C. (2003), "Joint decisions on household membership and human capital accumulation of youths: the role of expected earnings and labour market rationing", *Journal of Population Economics*, Vol. 16 No.2, pp. 265-285.

Ghirelli, C., Havari, E., Santangelo, G. and Scettri, M. (2019), "Does on-the-job training help graduates find a job? Evidence from an Italian region", *International Journal of Manpower*, Vol. 40 n. 3, pp. 500-524.

Hadjivassiliou, K.P., Tassinari, A., Eichhorst, W. and Wozny, F. (2018), How Does the Performance of School-to-Work Transition Regimes in the European Union Vary?, In O'Reilly, J., Leschke, J., Ortlieb, R., Seeleib–Kaiser, M. and Villa, P. (eds.), *Youth Labor in Transition*, Oxford University Press, New York.

Heckman, J. J. and Borjas, G.J. (1980), "Does unemployment cause future unemployment? Definitions, questions and answers from a continuous time model of heterogeneity and state dependence", *Economica*, Vol. 47, No. 187, pp. 247–283.

ILO (2020), "Stages of the school-to-work transition", Geneva (https://ilostat.ilo.org/glossary/school-to-work-transition-stages/).

Jenkins, S.P. (2005), *Survival Analysis*, Unpublished manuscript, Institute for Social and Economic Research, University of Essex, Colchester, UK.

Kiefer, N. (1988), "Econometric Duration Data and Hazard Functions", *Journal of Economic Literature*, No. 26, pp. 646—679.

Kleinbaum, D.G. and Mitchel, K. (2012), *Survival Analysis: A Self-learning text*, Springer, Berlin, III ed.

Manacorda, M and Moretti, E. (2006), "Why do Most Italian Youths Live with Their Parents? Intergenerational Transfers and Household Structure", *Journal of the European Economic Association*, Vol. 4 No. 4, pp. 800-829.

Manacorda, M., Rosati, F.C., Ranzani, M. and Dachille, G. (2017), "Pathways from school to work in the developing world", *IZA Journal of Labor & Development*, Vol.6 No.1, doi.org/10.1186/s40175-016-0067-5.

Manning, A. and Swaffield, J. (2008), "The Gender Gap in early-career wage growth", *Economic Journal*, Vol. 118 No. 530, pp. 983–1024.

Miller, R.G. (1997), *Survival Analysis*, Wiley, II ed.

Pastore, F. (2015a), *The Youth Experience Gap: Explaining National Differences in the School-to-Work Transition*, Heidelberg: Springer International Publishing AG, Berlin.

Pastore, F. (2015b),"The European Youth Guarantee: Labor Market Context, Conditions and Opportunities in Italy", *IZA Journal of European Labor Studies*, Vol. **4** No. 11, May.

Pastore, F. (2018), "Why is youth unemployment so high and different across countries?", *IZA World of Labor*, No. 420. doi: 10.15185/izawol.420.

Pastore, F. (2019), "Why so slow? The school-to-work transition in Italy." *Studies in Higher Education*, Vol. 44 No. 8, pp. 1-14.

Pastore, F. (2020), "La Garanzia Giovani nel regime di transizioni scuola-lavoro italiano. Opportunità ed elementi di criticità", *Economia & Lavoro*, Vol. 53 No.3, pp. 125-138.

Pastore, F. and Pompili, M. (2019), "Assessing the Impact of Off- and On-The-Job Training on Employment Outcomes: A Counterfactual Evaluation of the PIPOL Program", *IZA dp*, No. 12074.

Pohl, A. and Walther, A. (2007), "Activating the Disadvantaged: Variations in Addressing Youth Transitions across Europe", *International Journal of Lifelong Education*, Vol. 25 No.6, pp. 533–553.

Quintini, G., Martin, J.P. and Martin, S. (2007), "The changing nature of the school-to-work transition process in OECD countries", *IZA Discussion Paper*, No. 2582, January.

Raffe, D. (2008), "The Concept of Transition System", *Journal of Education and Work*, Vol. 21 No.4, pp. 277-296.

Ryan, P. (2001), The School-to-Work Transition: A Cross-National Perspective, *Journal of Economic Literature*, Vol. 39 No.1, pp.34–92.

Salas-Velasco, M. (2007), "The transition from higher education to employment in Europe: the analysis of the time to obtain the first job", *Higher Education*, Vol. 54 No. 3, pp.333-360. doi: 10.1007/s10734-006-9000-1.

Speckesser, S., Gonzalez Carreras, F. and Kirchner Sala, L. (2019), "Active labour market policies for young people and youth unemployment: An analysis based on aggregate data", *International Journal of Manpower*, Vol. 40, No. 8, pp. 1510-1534. https://doi.org/10.1108/IJM-03-2018-0100.

Van den Berg, G. J., and Van Ours, J. C. (1999), "Duration dependence and heterogeneity in French youth unemployment durations", *Journal of Population Economics*, Vol. 12, No.2, pp. 273–285.

Annex A – The variables of analysis

Table AI. Definition and descriptive statistics of macro-economic indicators.

Variable	Definition	Source	Mean	SD	Min.	Max.	Initial value (2004)	Final value (2017)
epid	Employment protection from individual dismissals	OECD	2.73	0.04	2.68	2.76	2.76	2.68
Temp_empl	Share of employees with a temporary contract (age group: 15–34)	Eurostat	48.21	8.14	34.50	61.90	11.90	15.50
TUD	Trade-union density	OECD	34.78	1.30	33.09	36.83	33.57	34.40
TW	Average tax wedge for a single person, at 100% of average earnings	OECD	47.10	0.73	45.90	47.84	46.28	47.68
$PLMP_{t-2}$	Spending in passive labour market policy as share of GDP divided by the number of beneficiaries in the 15–24 age group – delayed by two years	OECD	46.99	13.40	23.64	66.60	27.99	58.39
$ALMP_{t-2}$	Spending in active labour market policy as share of GDP divided by the number of beneficiaries in the 15–24 age group – delayed by two years	OECD	24.52	7.05	15.71	35.63	27.69	22.12
GDP_{t-2}	Gross domestic product – delayed by two years	OECD	3,3521.29	3,000	28,716	36,909	28,716	36,909
GDP_gr_{t-2}	Gross domestic product growth – delayed by two years	Eurostat	−0.14	2.02	−5.28	1.79	0.25	0.78
exp_ed	Government spending on education as part of total government spending	OECD	8.56	0.59	7.81	9.53	9.39	7.81

Table AII. Definition and sample composition of individual characteristics.

Variable	Description	Sample composition			
		All	Low	Medium	High
Nationality					
National	Born in the country of residence (Italy)	83.51	67.14	85.96	92.86
EU migrant	Born in another EU country	4.62	8.29	4.58	1.11
Extra-EU migrant	Born in an extra-EU country	11.87	24.58	9.46	6.02
Total		100	100	100	100
Woman	Woman=1	48.16	43.88	45.44	59.87
Level of education					
Compulsory or below	ISCED 2 level or less	20.77	-	-	-
High secondary	ISCED 3 and 4	58.12	-	-	-
Tertiary degree	ISCED 5 or more	21.11	-	-	-
Total		100			
Age group					
Teen	16–19 years old	1.80	4.05	1.65	-
Young	20–24 years old	19.40	20.34	24.27	5.10
Over 24 *(reference category)*	25–34 years old	79.00	75.61	74.08	94.90
Total		100	100	100	100
Area of residence					
Centre	Toscana, Umbria, Marche, Lazio	22.75	21.66	23.39	22.06
North	Valle d'Aosta, Piemonte, Liguria, Lombardia, Emilia-Romagna, Trentino-Alto Adige, Friuli-Venezia Giulia, Veneto	46.13	36.82	47.76	50.79
South (reference category: South and Isles)	Abruzzo, Molise, Campania, Puglia, Baslilicata, Calabria, Sicilia, Sardegna	31.12	41.52	28.85	27.15
Total		100	100	100	100
Degree of urbanization					
Rural area (reference category)	Thinly populated area (grid cells outside urban clusters)	30.32	28.81	32.04	27.07
Intermediate area	Clusters of contiguous grid cells of 1km^2 with a density of at least 300 inhabitants per km^2 and a minimum population of 5,000	40.53	36.82	42.34	39.20
Densely populated area	Densely populated area (contiguous grid cells of 1km^2 with a density of at least 1,500 inhabitants per km^2 and a minimum population of 50,000)	29.15	34.37	25.61	33.73
Living with parents					
One parent		13.09	12.81	14.17	10.38
Two parents		43.90	35.78	45.74	46.80
Youth unemployment rate	Unemployment rate for the 15–24 age group measured at NUTS1 level measured in the year when the individual has attained the highest level of education	28.84	-	-	-
Total		100	100	100	100

Table AIII - Matrix of correlation for macro-economic determinants of STWT duration.

	Mean durat	EPID	Temp_empl	TUD	TW	PLMP $_{t-2}$	ALMP $_{t-2}$	GDP $_{t-2}$	GDP_gr $_{t-2}$	Exp_ed
Mean duration[*]	1									

Epid	-0.7150	1								
Temp_empl	0.5573	-0.7862	1							
TUD	0.0808	-0.4558	0.6618	1						
TW	0.4427	-0.7131	0.9194	0.8424	1					
PLMP$_{t-2}$	0.3317	-0.5451	0.8676	0.6023	0.8725	1				
ALMP$_{t-2}$	-0.5411	0.7769	-0.7652	-0.7835	-0.8764	-0.6352	1			
GDP$_{t-2}$	0.4208	-0.7090	0.9280	0.7705	0.9474	0.8073	-0.7894	1		
GDP_gr$_{t-2}$	0.1687	0.2023	-0.2793	-0.4565	-0.4030	-0.4408	0.3464	-0.2992	1	
Exp_ed	-0.5773	0.7634	-0.9230	-0.6944	-0.9128	-0.8444	0.8409	-0.8761	0.3163	1

(*) Mean duration refers to the complete duration of STWT including student-workers.
Source: own elaborations on EU-SILC data.

Annex B – Controlling for students workers

In many EU countries student workers represent a relevant share of young people which every year enter the labour market. Starting to work before attaining the highest level of education is very usual in countries with a developed vocational and training path of education system. In Italy, this practice is not very common and in the years of the economic crisis student workers still decreased, passing from 31% in 2006 to 16.43% in 2017. They reduced especially among students enrolled at the university or above.

However, as robustness check we have provided measures of duration of STWT including the student workers in order to make our analysis comparable with those developed in other countries. When they are included in the analysis, the duration of their STWT has been set equal to zero.

Looking at the average transitions to regular jobs (Table B1), in 2017, for high school graduates, the transition to a regular job lasted 2.11 years (reaching 3.99 years when the incomplete transitions are included in the computation) and 0.91 years (or 1.77 including who has still not completed the transition) for university graduates. For those below high secondary education, the duration was 4.86 years (even 9.09, including the individuals who have still not completed the transition). The average duration was 2.35 years (or 4.85 with the incomplete transitions). These are extremely long and worrisome transitions.

[Table B1 about here]

The standard deviations are in some cases also higher than or equal to the averages. They suggest that the duration of significant shares of individuals for each group may be more than twice bigger than the average.

Higher education bears a return in terms of smoother transitions, but not as much as expected, considering that also a university graduate has to wait so long (about 11 months) to find a regular job.

Those who completed the duration were 7 out 10 in 2006, before the economic crisis produced its effects. In 2011, when the effects of the economic crisis were particularly apparent, they decreased by 5 percentage points. However, in 2017, they further decreased by other 5.9 percentage points. Even if the crisis reached the labour market with some delay, this last evidence suggests that some structural rather than cyclical worsening has been taking over in these last years.

Our calculations are slightly lower than those by Quintini et al. (2007, Table 1) probably because they focus on transitions to permanent, rather than regular work. However, they are much higher than the Eurostat (2012) ones, which refer to transitions to any type of job, even based on a fixed term contract.

Table B1 – Distribution of durations of the STWT for complete and incomplete transitions in Italy (by education level; 18-34 years old).

Level of education	2006			2011			2017		
	% compl.	Transition completed	All	% compl.	Transition completed	All	% compl.	Transition completed	All
		Mean (sd)	Mean (sd)		Mean (sd)	Mean (sd)		Mean (sd)	Mean (sd)
Compulsory or below	74.32	2.91 (3.26)	3.94 (3.99)	58.32	2.61 (2.99)	6.94 (6.58)	47.13	4.86 (3.93)	9.09 (6.10)
High secondary	69.55	1.42 (2.28)	2.22 (3.02)	69.77	1.39 (2.15)	3.32 (4.27)	64.39	2.11 (2.51)	3.99 (4.26)
Tertiary	80.73	0.36 (0.96)	0.65 (1.37)	79.27	0.52 (1.36)	1.22 (2.35)	74.47	0.91 (1.47)	1.77 (2.48)
All	72.56	1.74 (2.67)	2.56 (3.38)	67.91	1.53 (2.39)	4.05 (5.26)	62.01	2.35 (2.97)	4.85 (5.25)
n	10072	7260	10072	5972	4029	5972	5112	3420	5112

Note: Duration is measured in years and fraction of years; the indicators are weighted with sample weights.
Source: own elaborations on EU-SILC data.

Looking at the differences in the durations of the STWT by the type of labour contract, we find that the transitions to temporary work are slightly shorter than those to permanent work, suggesting that temporary work is still a more frequent door of entry into regular work for many young people (Table C1). However, in 2017 transitions to a temporary job are on average 1-2 months longer than those to a permanent job. This last outcome could suggest that the Jobs Act reform – introduced in Italy in 2014 which has further liberalized the fixed-term hires – has driven towards a consolidation of labour market duality, where the most skilled and motivated individuals tend to reach a faster permanent contract than the other individuals.

Table C1 – Distribution of people 18-34 years who have found a job by type of labour contract and duration of the transition.

Level of education	2006			2011			2017		
	% permanent	temporary Mean (sd)	permanent Mean (sd)	% permanent	temporary Mean (sd)	permanent Mean (sd)	% permanent	temporary Mean (sd)	permanent Mean (sd)
Compulsory or below	56.29	3.71 (3.27)	3.53 (3.25)	58.45	3.23 (2.75)	3.39 (3.18)	51.65	5.29 (3.47)	5.08 (4.16)
High secondary	62.87	2.41 (2.43)	2.78 (2.60)	63.32	2.31 (2.19)	2.72 (2.42)	57.49	2.61 (2.64)	2.45 (2.49)
Tertiary	54.56	1.05 (1,17)	1.37 (1.63)	57.60	1.38 (1.77)	2.06 (2.19)	53.89	1.41 (1.72)	1.32 (1.52)
All	59.31	2.92 (2.92)	3.00 (2.90)	61.01	2.56 (2.45)	2.89 (2.72)	55.44	3.01 (3.04)	2.78 (3.06)
N	4119	1687	2432	2112	898	1214	2829	1255	1574

Note: the indicators are weighted with sample weights.
Source: own elaborations on EU-SILC data.

TABLES

Table I - People 18-34 years old by education level and the status of student-worker.

Level of education	2006		2011		2017	
	%	% stud.w	%	% stud.w	%	% stud.w
Compulsory or below	31.85	14.71	29.53	15.09	25.85	4.01
High secondary	54.79	33.22	54.39	39.87	53.48	16.32
Tertiary	13.36	59.52	16.08	63.28	20.67	32.24
All	100	30.84	100	36.32	100	16.43
N	10072	10072	5972	5972	5112	5112

Note: Students and permanent disabled are excluded from the analysis.
Source: own elaboration on EU-SILC data.

Table II – Distribution of durations of the STWT for complete and incomplete transitions in Italy (by education level; 18-34 years old).

Level of education	2006				2011				2017			
	% compl.	Transition compl. Mean (sd)	Transition incompl. Mean (sd)	All Mean (sd)	% compl.	Transition compl. Mean (sd)	Transition incompl. Mean (sd)	All Mean (sd)	% compl.	Transition compl. Mean (sd)	Transition incompl. Mean (sd)	All Mean (sd)
Compulsory or below	70.00	3.61 (3.26)	6.93 (4.39)	4.61 (3.94)	52.30	3.32 (3.01)	13.00 (5.33)	7.94 (6.45)	45.51	5.18 (3.84)	12.87 (5.13)	9.37 (5.98)
High secondary	55.10	2.64 (2.54)	4.04 (3.63)	3.27 (3.16)	55.45	2.57 (2.34)	7.80 (4.60)	4.90 (4.38)	60.26	2.52 (2.55)	7.39 (4.65)	4.45 (4.27)
Tertiary	55.35	1.22 (1.44)	1.88 (2.00)	1.51 (1.75)	52.72	1.77 (2.04)	3.91 (3.23)	2.78 (2.88)	66.14	1.36 (1.62)	4.28 (3.06)	2.35 (2.61)
All	60.91	2.97 (2.91)	4.70 (4.08)	3.65 (3.52)	54.01	2.76 (2.62)	9.39 (5.68)	5.81 (5.43)	57.12	2.88 (3.05)	8.93 (5.60)	5.48 (5.27)
N	6,931	4,119	2,812	6,931	4,055	2,112	1,943	4,055	4,521	2,829	1,692	4,521

Notes: The analysis excludes the student-workers. Duration is measured in years and fractions of years; the indicators are weighted with sample weights.
Source: Own elaborations on EU-SILC data.

Table III. OLS regression models of STWT duration.

	All (with student-workers)	All (without student-workers)	Compulsory or below	High secondary	Tertiary
Temporary employment		0.069	0.1026***		
TUD				−0.137***	
TW					
PLMP	−0.022		−0.030**		
ALPM		−0.046**		−0.015*	0.007
GDP		−6.75e-5***			
GDP_gr	0.028				−0.047**
exp_ed	−0.477***			−0.038	
Constant	6.400**	4.772***	0.396	7.295***	1.156
Adj. R^2	0.4206	0.3096	0.7293	0.4960	0.2846
F	4.15**	2.94*	18.51***	5.27***	3.59**

*$p < .1$, **$p < .05$, ***$p < .01$.

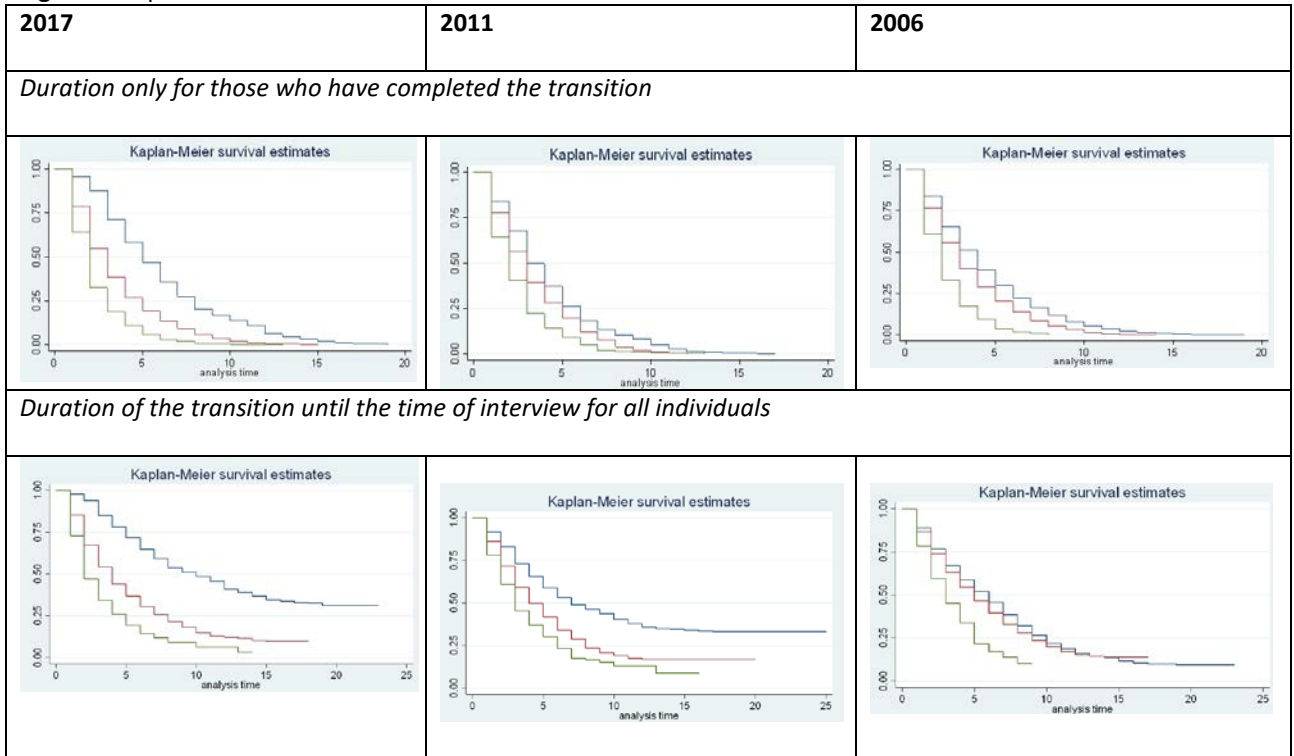**Source:** Own elaborations on EU-SILC data.

Table IV. Determinants of STWT duration at micro-level: complete duration (coefficients are expressed in terms of hazard ratios).

Transition duration	All with student workers	Without student workers				All (with unemployment)
		All	Compulsory or below	High secondary	Tertiary	
Nationality (ref. own country)						
EU migrant	0.895	0.896	1.114	0.865	0.156***	0.975
Extra-EU Migrant	0.656***	0.618***	0.862	0.550***	0.346**	0.680***
Woman	0.418***	0.390***	0.200***	0.405***	0.648***	0.389***
Education level (ref. <upper secondary ed.)						
Upper secondary education	4.604***	4.236***				4.359***
Post-secondary education	1.756***	1.127		1.125		1.190
Tertiary degree	3.445***	3.016***				3.666***
Age group (ref. 25 and over)						
Teen (16–19 years)	0.983	0.780	0.901			1.223
Young (20–24 years)	1.523***	1.677***	0.924	2.086***	1.309	2.239***
Area of residence (ref. South and Isles)						
Centre	2.028***	2.078***	1.165	2.203***	2.545***	-
North	3.216***	3.379***	2.148***	3.724***	3.675***	-
Degree of urbanization (ref. thinly populated)						
Intermediate area	0.740***	0.767**	0.900	0.703**	0.836	0.946
Densely-populated area	0.519***	0.542***	0.330***	0.603***	0.909	0.716***
Interaction effect urbanization × area						
North-City	1.466***	1.321	2.409**	1.064	1.139	-
Centre-City	1.626***	1.497*	4.991***	1.310	0.553	-
North-Intermediate area	1.055	1.101	1.073	1.133	1.182	-
Centre-Intermediate area	1.617***	1.614***	2.156*	1.515*	1.997	-
Living with parents (ref. category: living alone)						
With one parent	0.640***	0.665***	0.542***	0.662***	0.660*	0.690***
With two parents	0.705***	0.714***	0.627***	0.658***	0.860	0.714***
Youth unemployment rate						0.967***
Constant	0.025***	0.017***	0.034***	0.076***	0.096***	0.083***
p	1.735	1.857	1.830	1.844	2.084	1.825
$\ln\theta$	1.296	1.395	1.463	1.455	1.274	1.425
LR χ^2	1,676***	1,325***	203.85***	423***	120***	1,172
n	5,112	4,521	1,036	2,667	818	4,521
AIC	12,791	10,643	2,209	6,511	1,877	10,786
BIC	12928	10,778	2,298	6,617	1,957	10,888

*p < .1, **p < .05, ***p < .01.

Source: Own elaborations on EU-SILC data.

Figure 1. Kaplan–Meier survival estimates.

2017	2011	2006
Duration only for those who have completed the transition		
Duration of the transition until the time of interview for all individuals		

**Legend:** blue=less than high school; red=high school graduates; green=tertiary educated.
Source: Own elaborations on EU-SILC data.

Figure 2. Kaplan–Meier survival estimates by gender and level of education for 2017 (completed and incomplete transitions).
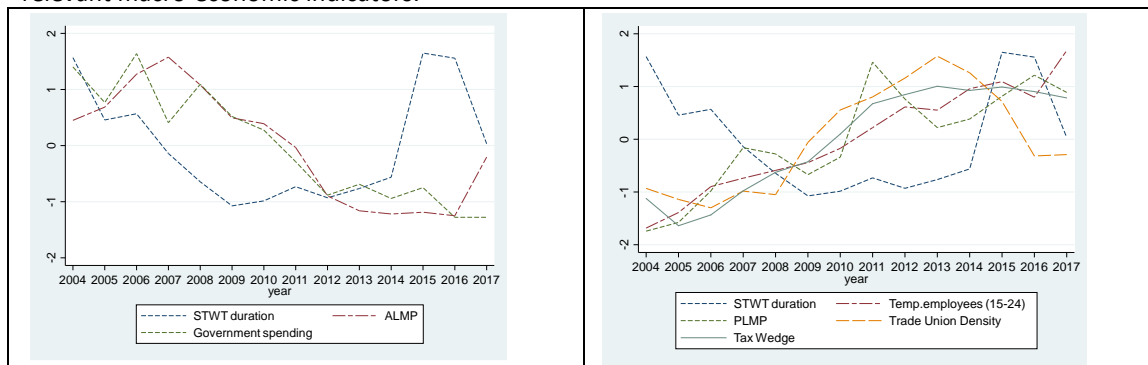
Completed	Incomplete
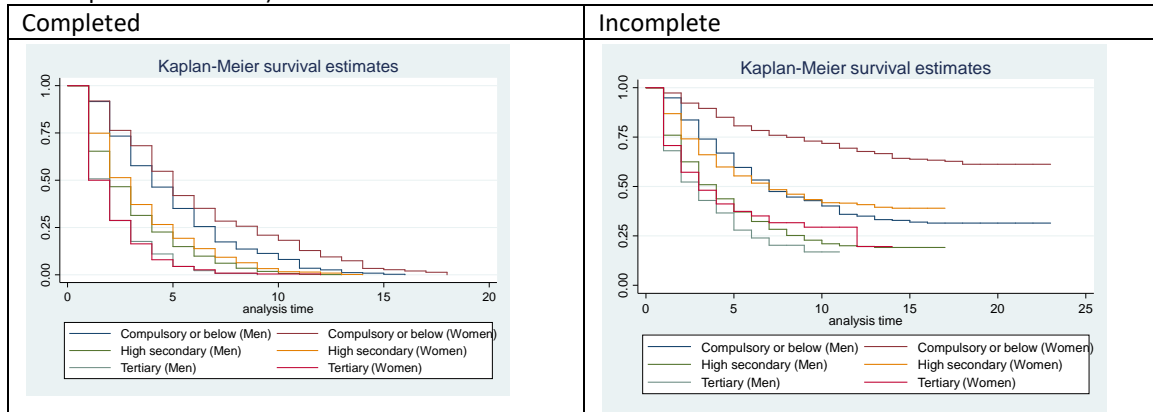
Source: Own elaborations on EU-SILC data and OECD online database.

Figure 3. Trend of the mean STWT durations by level of education (student-workers are not included).
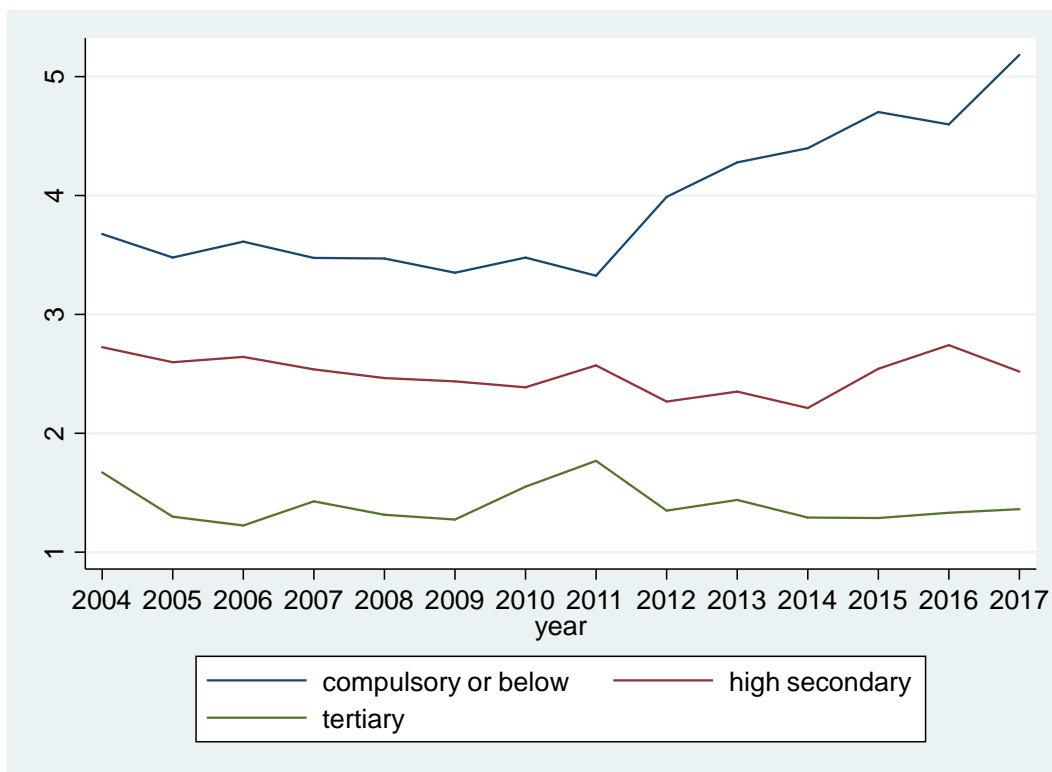
Source: Own elaborations on EU-SILC data.

Figure 4. Trend of the overall mean duration of the STWT (excluding student-workers) and some relevant macro-economic indicators.

Note: In order to make the variables comparable, variables have been preventively standardized.
Source: Own elaborations on EU-SILC data and OECD online database.

Endnotes

1. With the term "two-tier reform" we mean the reforms that regarded the new hires (so-called outsiders) but without changing the job characteristics of the workers who are already employed (so-called insiders). This pertains to the reforms that in many EU countries, such as Italy, have been introduced to increase labour-market flexibility through marginal changes in employment protection legislation (EPL) that have liberalized the use of fixed-term (or temporary) contracts, while leaving largely unchanged the legislation affecting the stock of employees with open-ended (or permanent) contracts (Bentolilla *et al.*, 1994, 2012, 2008).

2. For sake of brevity, the duration by type of labour contract (temporary versus permanent) is in the Annex C (Table CI) while in Appendix B complete and incomplete durations are calculated including also student workers (Table BI). The latter are those individuals who started to work before finishing their studies. When they are included in the analysis, the duration of their STWT has been set to zero.

3. The list includes all the relevant available indicators. However, only a subset of these variables has been included in the analysis.

4. The analysis does not include student workers. They might shorten the average duration of transition, as the duration of their transition equals 0. We provide some measures of the duration, including student workers in Appendix B.

5. For brevity's sake, the table of correlations is reported in Appendix A (Table AIII).

6. When coefficients h are expressed in terms of hazard, they measure the ratio between the probability of occurrence of an event (the attainment of a stable job), conditional to the values assumed by the corresponding covariate at a certain time point. In other words, it is the likelihood that if something survives to one moment, it will also survive to the next:

$$h(t) = \lim_{\Delta t \to \infty} \frac{\text{Observed events in interval}[t, t+\Delta t]/N(t)}{\Delta t}$$

The ratio of the hazard function is given by, where β is the estimate of the treatment effect derived from the regression model.

7. The *t*-test for the comparison of coefficients shows that the difference between them was not statistically significant. For example, for the model "All with student workers", the *p*-value was 0.2646; without the student-workers, the *p*-value was 0.4535.