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ABSTRACT

The Duration of the School-To-Work Transition in Italy and in Other European Countries: A Flexible Baseline Hazard Interpretation

Purpose: The Italian school-to-work transition (STWT) is astonishingly slow and long in comparison to the other EU countries. The aim of this paper is to analyze its determinants comparing the Italian case with Austria, Poland and the UK in a gender perspective. Design/methodology/approach: The analysis is based on a Cox survival model with proportional hazard. The smoothed hazard estimates allow us to identify the non-linear path of the hazard function. Findings: We reckon that the actual length of the transition to a stable job is around 30 months. Conversely, it is less than one year in the other countries. Women are particularly penalized, despite being on average more educated than men. Attaining a tertiary degree or a vocational path of education at high secondary school strongly increases the hazard rate. The smoothed hazard estimates support the hypothesis of positive duration dependence at the beginning of the transition and slightly negative thereafter. Practical implications: Stimulating economic growth and investing in education and training are important pre-conditions for shortening the transition. Originality: Despite the duration of the STWT is one of the most important indicators to measure the efficiency of the STWT, it is not easy to measure. The authors build on their previous research work on this topic, but relaxing the assumption of a monotonic hazard rate and using the flexible baseline hazard approach to test for the existence of non-linear duration dependence. Furthermore, they extend the analysis by including student-workers who attended a vocational path of education, in order to detect its effectiveness in allowing young people finding a job sooner.

JEL Classification: H52, I2, I24, J13, J64, J68

Keywords: duration, school-to-work transition, Europe, Italy, transition regime

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1. Introduction(*)

The school-to-work transition (STWT) is the period from the end of the studies to the attainment of a regular job. Even if it represents a crucial step in the life cycle of an individual, sometimes affecting all the future career path, information about its duration and the studies of the factors affecting this duration are very few and fragmentated also because of the lack of official statistical data.

The analysis of the STWT requires first of all the investigation of the capacity of education systems to stimulate young people to attain higher levels of education and acquire the general and job specific work-related competences and skills required by perspective employers (Pastore, 2015; 2018). Moreover, the hardship related to entry into the labour market is strongly linked with the characteristics of the labour market and type of transition regime, that is the mix and interactions between the education system, the labour-market and their regulating institutions.

Education systems – in terms of level and quality of education – is key in providing young people the skills and competences required by the labour market and therefore in determining the STWT success. In sequential education systems, part of the human capital, namely the work-related competences, are acquired after completing education. Any barrier in the labor market to the acquisition of the competences and skills required by perspective employers may slow down the STWT process, contributing to increase the relative disadvantage in terms of work experience as compared to adults (Pastore, 2015; 2018). Conversely, an education path very close to the labour market and strongly connected with the enterprises, such as the model in force in Continental countries, which puts together general and vocational programs of education, makes in most of the cases the transition to work fast and smooth, with many students starting to work even before completing their studies (student-workers).

The aim of this paper is to analyze the duration of the STWT in Italy and its determinants comparing the Italian case with other European countries also in a gender perspective. The duration of the STWT is one of the most important indicators to consider when attempting to measure the efficiency of the STWT (Ryan, 2001; Raffe, 2008; Pastore, 2015, 2018; Pastore et al., 2020) and therefore should be continuously monitored, but it is not easy to compute. The few studies available on this point have demonstrated the existence of a great variability across European countries.

By providing a new, more accurate measure of the duration of the STWT, our paper aims to contribute, on the one side, to changing the traditional way of thinking of investment in human capital. In fact, the duration of the STWT in conditions of uncertainty may significantly affect, among others, the *ex ante* returns to higher education and explain the decision to enroll at or to drop out from from higher secondary school or university (Altonji, 1993). The reduction in the enrolment rate, and also in the share of university graduates, is becoming a major problem in several advanced countries where the duration of the STWT is too long (see the recent editions of the "Education at a glance" reports published by the OECD). Italy is currently the OECD country with the lowest rate of tertiary education attainment (for a recent assessment, see De Angelis et al. 2016).

Providing evidence of the duration of the STWT is very important for academic research, educational institutions, and policy makers at all levels. An extremely lengthy transition might change the idea that *ex post* returns computed only for graduates is the right indicator to consider when studying the decision to invest in higher education. Although Mincerian earnings equations have become one of the most common tools to estimate returns to education, they have been mainly based on the distorted sample of workers who have actually succeeded in graduating. However, it would be important to weigh these *ex post* returns against the probability of attaining a degree and of finding a job in each period of time to measure *ex ante* returns. Decisions to invest in education may be better understood with respect to this more accurate measure, rather than with respect to the one currently used, based on the received wisdom.

(*) Acknowledgments: we thank the associate editor Adrian Ziderman and the anonymous referee for very useful suggestions. However, the usual disclaimer applies.

In a previous research work (Authors, 2020), we examined the Italian STWT duration in 2017 by focusing on macroeconomic and individual-level determinants by means of parametric survival models adopting a Weibull distribution. We found evidence of positive duration dependence, which means that the probability of finding a job increases with time from study completion. In the current paper, we innovate the analysis from different points of view. First, we focus on the determinants of the duration of the STWT at an individual level relaxing the assumption of a monotonic hazard rate and update the analysis to a more recent year, 2018, the last one for which the data is available. We use the flexible baseline hazard approach, based on the Cox model, to test for the existence of duration dependence. This allows us to identify the non-linearity pattern of hazard functions. Results highlight indeed that the hazard function increases in the first period to quickly decrease thereafter.

We provide estimates of the STWT by different levels of education and find evidence of much longer transitions for medium (high secondary school attainment) and above all low (only compulsory education attained) educated.

A further innovation consists of the analysis of the differences in the duration of the transition by gender. We find that women experience longer duration, despite being more educated than men and even when we look only at those women who have completed the transition at the time of the interview, therefore correcting for the possible decision to remain inactive.

Third, through EU-SILC data, we provide comprehensive comparable evidence on the duration of the STWT in different European regimes, each represented by a specific country: Austria for the Central-European regime; the UK for the liberal regime; Poland for the Eastern European post-communist regime and Italy for the Mediterranean regime. Scandinavian countries are not included in the analysis because their EU-SILC survey does not provide sufficient information to measure the duration of the STWT.

Finally, as we will show in detail in the data section, we enlarge the sample including in the econometric estimates also the sub-sample of student-workers who attained a vocational of education, in order to detect the capacity of the education system to provide job opportunities sooner than other educational tracks. Our comparative analysis allows us to quantify the impact on the STWT of the vocational rather than general program of education. We find evidence of a very strong impact of the vocational path of education in Germany and Poland as compared to Italy.

The rest of the paper is as follows: section 2 contains a review of the literature on STWT and the related issues of its measurement; section 3 illustrates data and methodology while in section 4 we show the main findings of the study. Finally, section 5 concludes.

2. Literature Review and statistical concerns of the STWT

At the European level, the main official statistical sources to monitor the individuals' entry in the labor market are the Labour Force Survey (LFS) and EU-SILC, but none of them allows fully to reach this goal.

In 2009, Eurostat (2012) tried to address the gap in the measurement of the STWT among EU countries by using the ad hoc module of European Labor Force Survey "Entry of young people into the labor market" [1][2]. The analysis showed remarkable differences across countries, but not as remarkable as one would have expected. Southern and Eastern European countries were the slowest, but not as much as anecdotal evidence suggested. Italy was second only to Greece in terms of the duration of the transition for university graduates (nine months) and only seventh for higher secondary school graduates (13.5 months).

[1] The following web site illustrates the methodology and results of the survey: https://ec.europa.eu/eurostat/documents/1978984/6037334/Explanatory-notes-AHM-2009.pdf.

[2]

Moreover, our impression is that in the last years the situation is much worsened, especially in Italy and other Southern European countries. Probably, the way in which the Eurostat indicator of the STWT duration was constructed contributes to smooth cross-country differences. Indeed, Eurostat considered in that study any transition to the "first significant job", meaning a job of at least three months and, therefore, not necessarily a permanent or even a "regular job" (we will provide the Eurostat definition of a regular job later). However, the "first significant job" may not in reality represent the end of the STWT. This generates a dramatic underestimation of the overall duration of the transition. It is a quite well-known fact, already noted in the literature, that the so-called two-tier reforms and the diffusion of temporary work have often led to a decrease in the duration of unemployment spells, but not necessarily in the transition to a permanent job, i.e. the duration of the overall transition. Quintini et al. (2007, Table 1) are perhaps among the first to have reported this, with reference to Spain and Italy, among others. In the latter country, they estimated that the duration of the transition from education to a permanent job was 44.8 months, much longer than the Eurostat estimate, and these authors also found similar figures for Spain.

The main, but certainly not the only reason for this longer duration than that computed by Eurostat (2012) is the lack, among young people, of professional skills sufficient to allow companies to hire them on a permanent basis. In turn, this gap in work experience is due, first of all, to the lack of opportunities during the course of school/university, especially in countries adopting a sequential education system; second, after completing education, to a labour market where institutions are not able to provide to young people the opportunities to acquire experience and improve their skills (Ryan, 2001; Raffe, 2008; Pastore, 2015, 2018).

With reference to the labour market factors, when young people complete education and enter the labour market, they are particularly disadvantaged in comparison to their adult peers, because they lack of work experience and of experience in job finding. When the STWT is long, this means that the young individuals experience repeated failures in job search that may lead to prolonged unemployment, with long-term consequences on career prospects quite negative (Bell and Blanchflower 2010) or to the definitive exit from labour market for discouragement. Many economists agree on the scarring effect of prolonged periods of inactivity or in failing in the job search (Arulampalam et al. 2001). Previous research (see among others Lancaster, 1979; Nickell, 1979) found that these experiences could act reducing the probability to reach a stable job in the future because remaining unemployed or inactive for a long period impoverishes human capital and, from the supply side, can be interpreted by employers as a sign of scant attitude to work (Pastore et al., 2021 for a recent assessment) This is what the economic literature identifies as negative duration dependence. However, more recent research (Heckman and Borjas 1980; Heckman and Singer, 1984) found that negative duration dependence is essentially due to omitted heterogeneity in unemployed job seekers: longer unemployment spells are related to less skilled and motivated individuals. The time spent during the SWT and the related experiences deeply affect the individuals' whole life and therefore the countries' economic and social prospects. It influences the young adults' sense of self-efficacy about their decision-making abilities and their coping skills, the stability of their initial vocational choices, the speed with which they learn new job responsibilities, and their level of comfort with new colleagues and workplace norms (Caroleo et al., 2020). Sometimes, this may lead individuals to accept an unqualified job, generating over-education or over-skilling or may induce them to fall in a trap of low-paying, temporary or unstable jobs. Conversely, the presence of institutions which give assistance to young people on opportunities in terms of jobs and training is crucial, especially in countries where the level of unemployment is high. Experiences in terms of training could allow young people to improve their skills and competences, therefore increasing their employability. The recent wide diffusion of temporary work, especially in some European countries has been finalized to reduce the labour market rigidity and to create job opportunities for young people, even if for a brief period of time. They can represent an opportunity to accumulate work experience, to acquire the skills required by the labour market and, in some cases, may represent an entry-door for an indefinite contract (Korpi

and Levin, 2001). However, on the other side, in too many cases, it has led to a strong precariousness of job positions especially for young people, contributing to ward off the achievement of a stable job.

Recent research on Italy has focused on the transition of university graduates. Caroleo and Pastore (2018) study the first 5 years of career of university graduates, by using AlmaLaurea data. They highlight important differences across fields of study and areas of residence in the probability to experience overeducation and overskilling. They test for the determinants of overeducation/overskilling and find that a human capital interpretation in terms of lack of work experience among university graduates as a factor of overeducation/overskilling cannot be rejected.

A study by Anelli (2020), which is based on linking AlmaLaurea data with data from the social security archives, allows reconstructing the first decades of the working career of university graduates in Italy, which shows amazing differences across fields of study. He looks at the earnings of university graduates as reported to the social security by graduates. Interestingly, the study shows that some of the conclusions of Caroleo and Pastore (op. cit.) reached for some fields of study are not confirmed in a longer perspective, which suggests that a process of learning by searching and by doing is taking place and that young graduates, especially in some fields of study, take some time to develop fully their career also from an economic point of view.

We consider these two contributions complementary to this work, in as much as they provide a focus on fields of study which is impossible to attain with the EU-SILC data, as discussed at more length in the data section.

In a nutshell, the macroeconomic context, as well as the social and institutional systems are important determinants of the duration of the STWT as well.

From a theoretical point of view (Ryan, 2001; Raffe, 2008; Pastore, 2015, 2018), we could consider the STWT process to be completed when the individual has gained all the components of human capital that are necessary to gain a job. But questions remain regarding which type of job. A recent International Labour Organization (ILO, 2021) publication suggests considering the transition completed, and hence the young person "transited," when she/he has found a permanent or, if temporary, at least satisfactory, job. The key point is to consider whether they are sufficiently satisfied with the job to stop them from searching for another job.

3. Methodology and Data

3.1 Data

The study of the determinants of the STWT duration requires information on many aspects. The most important of them concern the starting and the ending points of the STWT, that is when young people complete their studies and when they start their first regular job. However, also important is the information about the studies completed, in terms of their general or vocational content, the field of study, the grades achieved, the experience lived during the STWT in terms of training or additional education received and actions taken in order to find a job. Finally, as the STWT is strongly affected by the economic and social context where the individual lives, it should be important also to collect information with a sufficient territorial detail.

Unfortunately, information on several of these aspects is missing in many cases, with the exception of some LFS ad hoc modules. In Table 1 we briefly report the specific information on these topics in the LFS and EU-SILC data bank.

[Table 1 near here]

In this paper, we use the EU-SILC data, cross-section version for the year 2018. The EU-SILC

questionnaire asks respondents to provide the year when they attained the highest level of education (variable pe030) and the year when they achieved their first "regular job" (variable pl190). The latter is defined as any paid work activity (without distinguishing between self-employed and wage employees) that lasted for at least six months, excluding seasonal and occasional work. Regular work may be temporary or permanent. We focus on all young people that, at the time of completing the questionnaire were 18–34 years old, excluding from the analysis the permanently disabled, students and those in military service.

In our analysis, we provide descriptive statistics of the duration of the STWT including the so-called student-workers. The latter are individuals who started their first regular job before finishing their studies. For them, the duration of the STWT is set to zero. Different from previous authors' research work (authors, 2020, 2021), in this paper, we decided to include student workers in the econometric analysis, but limiting the analysis to the case in which they followed a vocational path at high secondary school. In this way, we can measure the ability of the education system to directly guarantee a fast and smooth transition to work[3]. Conversely, in the other cases in which a student starts working for reasons which are not directly connected with school attendance, we decided to exclude them from the analysis. This choice is due to the fact that they do not experience at all the period of transition to work and is in accordance with Eurostat, which, in the methodological note, affirms: "focusing on young people no longer in formal education avoids the need to consider employment during studies". Clearly, the inclusion of student-workers should reduce the average duration. It is important to note that the – even if partial – the exclusion of student workers from the analysis, leads to over-estimate the duration of the STWT in countries where the practice to start to work before attaining the highest level of education is more frequent, such as in Continental countries. This is why we provide descriptive statistics on the duration of the STWT including student workers, as well.

We then distinguished between two cases: those who had "completed" and those who had not completed the transition at the time of the interview, meaning that they had found (or not) a regular job at the time of the interview. For the former, the transition ends when they find a regular job. For the latter, the transition lasts from the time of study completion until the time of the interview. Apparently, this group of individuals who have not completed the transition at the time of interview includes both those who are actively looking for a job and those who are inactive and have probably definitively renounced to search for a job. The distinction between these two groups is fundamental to study the STWT and this is why in the descriptive analysis we will use all the available information to identify them (level of education, marital status, median year of study completion and status of unemployed or inactive).

Finally, as we are interested to identify the successful completion of the STWT, initially, we assign the status of incomplete transition also to those individuals who found in the past a regular job, but are not employed at the time of the interview. However, in the robustness checks, we remove this assumption and repeat the estimates considering completed the transition also for these individuals who found a job in the past[4] [5].

Furthermore, to verify the delay in starting and in concluding the STWT, we analyze the mean age when individuals attain the highest level of education and when they get the first regular job.

Moreover, we distinguished individuals by gender and by their level of education attainment: a) compulsory or below (ISCED 0-2); b) higher secondary (ISCED 3-4); and c) tertiary education (ISCED 5-8) (respectively, low, medium, and high education levels).

Unfortunately, our databank neither allowed us to detect the type of tertiary education attained (three-year vs. three-plus-two-year degree) nor the field of study (e.g. arts degrees vs. STEM degrees). This, in turn, prevented us from assessing fully the duration of university studies and that is why we chose to focus only on post-education STWT.

[3] We thank an anonymous referee of the journal for suggesting us this extension of the study.

[4] We thank an anonymous referee of the journal for suggesting this robustness check.

3.2 Methodology

For the identification of the determinants of variability in the durations of the STWT in the analyzed countries, we estimated a semi-parametric Cox proportional hazard model. This is quite a standard model and hence here we will provide only an overview of its main features for the convenience of the reader. The hazard rate (the instantaneous probability to find a job at any duration of the STWT) depends on a given set of covariates representing the personal characteristics of the individual in the sample, rather than the characteristics of the job held (sector of industry, type of labor contract, etc.) to avoid endogeneity problems. This model thus allowed us to evaluate simultaneously the effect of several factors on survival at a particular point in time. Its main characteristics are based on the fact that it leaves its baseline hazard function $\alpha(t)$ unspecified and free to vary with time, without imposing a given functional form on it, as in the parametric version of the model. Let $h(t)$ be the hazard function:

$$h_i(t) = h_0(t)\exp(\beta_1 x_{i1} + \beta_2 x_{i2} + \dots \beta_k x_{ik})$$

where:

- t is the survival time in the STWT;
- $h(t)$ is the hazard function as determined by a set of k covariates ($x_1, x_2, \dots, x_k$); and
- β_k are the relative coefficients ($\beta_1, \beta_2, \dots, \beta_k$) measuring the impact (i.e. the effect size) of covariates on the hazard rate.

The term h_0 is referred to as the baseline hazard. It corresponds to the value of the hazard if all the x_i are null. The hazard varies over time, i.e. when t changes. The Cox model function can also be written as a multiple regression of the logarithm of the hazard on the variables x_i. In this case, the baseline hazard represents the intercept term varying overtime:

$$\log h_i(t) = \alpha(t) + \beta_1 x_{i1} + \beta_2 x_{i2} + \dots \beta_k x_{ik}$$

This survival model is the most appropriate when we have no prior assumptions regarding how the relative hazard changes with covariate. Indeed, the Cox proportional hazard model assumes that: i) the ratio of the hazard function for two individuals with different sets of covariates does not depend on time; ii) time is measured on a continuous scale; iii) censoring occurs randomly (Fisher and Lin, 1999; Therneau and Grambsch, 2001). The Cox model is therefore more flexible and, unlike parametric models, does not require the estimation of the baseline hazard function. About the use of the semiparametric estimator, Meier (1990) highlighted that it yields more plausible coefficients than those obtained from commonly used Weibull models. Indeed, estimation of the shape of the baseline hazard provides us with more direct information on whether there is duration dependence, whether it is positive or negative or whether it is non-linear, mainly positive and negative in different durations. The baseline hazard will directly provide the shape without testing the statistical significance of any given parametric function.

We used Stata 15 for the econometric analysis and exclude student-workers, as they did not spend a period in the transition from school to work. The graphical representation of the smoothed hazard functions, calculated as a weighted kernel-density estimate using the estimated hazard contributions, allows to identify the type of duration dependence. We will have evidence of positive duration dependence if the hazard rate increases over time, which means that the probability of exiting from the STWT increases with time, supporting the theory of "learning by searching": during the permanence in the STWT, individuals increase their skills and capacity in searching for a job because they gain work experience and accumulate work-related competences. Conversely, in case of negative duration dependence, the probability of exit from the STWT decreases over time, in accordance with the idea that the experience of prolonged periods out of the labor market reduces the individuals' human capital potentials and therefore their future career prospects. Another non-alternative possible interpretation for this positive duration dependence is that young individuals may reduce their reservation wage (or

revise the characteristics of the "desired job") and the unemployment spell increases[6].

The most of studies of this type refer to adult population (see among the other Lancaster, 1979; Nickell, 1979; Van den Berg and Van Ours, 1996). The effects of prolonged periods out of work for young people could be still stronger, given their lack of experience and could also led to human capital loss, provoking in some cases the definitive exit from the labor market, especially for women. It is therefore very important to estimate these effects.

4. Findings

4.1 Descriptive Analysis

For an overall view of the characteristics of the STWT in Austria, Italy, Poland and the UK, we report the descriptive statistics by gender and level of education on: share of student-workers (Table 2); the mean age when individuals start their transition (Table 3); and when they complete the transition (Table 4). In table 5 we show the share of those who have completed the transition in the sample at the time of interview and the mean duration of the transition, both including and excluding those who are still in the transition at the time of the interview. Finally, in table 6 we investigate the specific cause of permanence in the STWT, that is unemployment or inactivity, for those that at the time of interview have still not completed the transition[7].

Examining the distribution of sampled units by level of education (Table 2), we can see that the highest level of education attained by young people continues to dramatically differ across countries, confirming that the different performances in the transition process is connected, first of all, with the education system and its capacity to keep students in education longer. In particular, in Italy, the share of tertiary-educated individuals is one of the lowest in Europe, showing also a significant gender gap. Indeed, only 15% of men attain a university degree, compared to 26% of women. In the UK, these figures are higher than 43%, without significant gender differences. Conversely, the share of low-educated, i.e. young people having only a compulsory level of education, is still sizeable in Italy: 27.85% among men and 23.92% among women. The corresponding percentages in Poland are below 10%.

Notably, the share of student-workers in Italy is around 11%, the lowest among the countries analyzed, while in the other countries it overcomes 40% at least among university students.

Also, the mean age when individuals complete their studies varies widely across EU countries (Table 3). Differences arise especially when we consider the end of tertiary studies. Unfortunately, EU-SILC data did not allow us to distinguish between the first and second level of university graduation in all countries. However, the mean age of entrance into the labor market for Italian young people with tertiary education is 25 years and appears to be the highest, especially when compared with the UK, where on average tertiary educated complete their studies around the 22 years. Another surprising result is the high mean age of the attainment of a low educational level, around 17 years in the UK. However, this could be the signal of the capacity of the UK education system to integrate young individuals who are struggling in this context (they only represent a small share of the young population).

[Table 2 near here]
[Table 3 near here]

[6] We thank on anonymous referee of the Journal for this useful interpretation.

[7] Note that the sample size for the UK is reduced because the information on the year of achievement of a stable job (pl190) presents missing values in a certain proportion of the cases. All the elaborations use sample weights to correctly infer them to the whole population.

Looking at the mean age when young people get their first regular job (Table 4), the gap is particularly evident between Italy, on the one hand, and Austria, on the other hand, in particular for the low and medium levels of education, with a high share of Austrian individuals starting work before completing their studies. Indeed, in Italy, young people with only compulsory education attain the first regular job, on average, when they are 20 years old, while young individuals with the same level of education attain their first regular job on average 3 years earlier in Austria, 2 years earlier in the UK and 1 year earlier in Poland. With reference to tertiary-educated individuals, the gap is greater than four years on average between Italy, on the one hand, with an average of more than 24 years old, and Austria and the UK, on the other hand, while Poland has an intermediate position (around 22 years).

[Table 4 near here]

It is interesting to note that in all the countries studied, the share of women who are tertiary educated is much higher than the corresponding one for men. The propensity to invest more in education for women is probably due to the fact that the gender disparities decrease for higher levels of education (Manning and Swaffield, 2008). Indeed, the mean age when individuals gain their first regular job is systematically higher for women with a low and a medium level of education. The gender gap is maximum in Austria for low educated, with a mean age of 16.46 years for men and 17.36 for women. A possible explanation for this finding may lie in the different distribution of men and women by field of study, which generates different employment opportunities: women are less frequent in STEM field. However, as reported in the data section, we cannot verify this statement due to the lack of information on the field of study at both the middle and high level of education.

In order to analyze the duration of the STWT, it is not sufficient to look at the mean ages of the starting and ending points, because these mean ages show strong variability, especially that referred to the age of attainment of a regular job[8]. It is more important to look at the share of individuals who have completed the transition at the time of interview and at the effective individual duration of the STWT.

The condition of Italian young people is still worse in terms of the share of young people who had completed the transition at the time of interview (Table 5): they are only 72.60% of men and 55.44% of women. The gap with the other countries is at least of 13 percentage points. It does not reduce also for the tertiary educated: while in Italy around 8 out 10 men and 7 out 10 women have completed the transition, in the other countries, they are more than the 90% of men and around 80% of women. However, when we look at the mean durations, the gap between Italy, on the one side, and the other countries, on the other side, is still higher while no great differences by gender arise. Indeed, for those who have completed the transition, in Italy the duration of the STWT is of 2.9 and 2.46 years, respectively for men and women, while in the other countries it does not reach one year for both men and women. The disparities are still higher when we focus on the low-educated. It is even around 6 years in Italy while in Poland it lasts around 3 years and in the UK one year.

[Table 5 near here]

Including in the analysis also those who have not completed the transition at the time of the interview, the mean duration of the STWT reaches 4 years for men and 5 years for women. In the other countries, they are instead around 12 months for men and between 2 and 3 years for women.

It is reasonable to suppose that some of those who have not completed the transition at the time of interview will never complete it, exiting definitively the labor market. Some of them could even never search for a job. It is, therefore, important to verify their professional status at the time of interview.

[8] Note also that while the mean age of study completion is based on the whole sample of individuals, the mean age of attainment of the first regular job involves in the calculation only those who have completed the STWT transition.

Table 6 shows that in most of the cases, they are in the status of inactivity in Austria, Poland and the UK while, they are unemployed in Italy. This outcome confirms that in the Italian scenario the longer duration of the STWT is in a relevant number of the cases not due to a voluntary choice. In all countries, inactivity is more frequent among women; more than 1 out of 2 of inactive women have a marital status different from single and in most of the cases are at least medium educated. Looking at the median year of the end of studies, it dated back in the majority of the cases at least 6 years before the interview, also for the unemployed, which mirrors the fact that the time spent out of the labour market is very long for all of them. However, those who have not completed the transition at the time of the interview are a low share of the whole sample, especially in the UK and Poland.

[Table 6 near here]

Finally, the majority of inactive women (from 94% of Italy and Austria to 62% of Poland) have declared as their main labour market status: "fulfilling domestic tasks", while with the exception of Italy, only a minority of inactive men declares this to be the reason for being inactive. Most likely, the majority of women providing this answer will never complete the transition.

4.2 The Determinants of Duration

The variables considered in the analysis concern personal characteristics and factors linked to the individuals' place of residence. More in particular, with reference to the individual characteristics, we considered: the nationality, distinguishing if the country of origin is the country where the individual lives, a different EU country or an extra-EU country; civil status, gender, age and level and type of educational path. We expect that coming from another country, especially if an extra-EU country, being female or low educated significantly increases the duration of the STWT. Migrants are indeed usually strongly penalized in the labor market because they often experience difficulties with the language of the host country, or in seeing recognized their skills and education attainment. Women are more penalized for their major difficulties in reconciling work and family life, especially if they have children. Finally, a low level of education guarantees access to a smaller number of occupations. For the medium educated, we distinguished even between the vocational or general path of education with the aim to verify if vocational education effectively helps young people to find a job quickly or not.
Civil status in this step of the life cycle should differently affect the duration of the STWT between men and women, tending to increase the duration for women and reducing it for men: indeed, marrying increases the reservation wage of women and reduces that of men. However, as it is detected only at the time of interview, it may result endogenous to the object of study, that is the STWT transition, as it could depend on the individuals' professional status.

Finally, the place where the individual has grown has been taken into account considering the degree of urbanization, the regional level of unemployment and the availability of possible unemployment benefits. These latter could act on the one side, by increasing the resources available for job search, therefore easing it (Atkinson and Micklerightt, 1991), but, on the other side, as they result in an economic disincentive, they could act reducing the intensity of job search (Meyer, 1990).

In table 7 we report the descriptive statistics for the variables included in the econometric analysis. Countries show very different compositions of young people population in terms of country of origin. In the EU-SILC sub-sample selected for the analysis, the presence of immigrants is minimum in Poland (0.5% among men and women) while it is high in the UK (around 20%) and very high in Austria (around 25%).

[Table 7 near here]

Looking at the marital status of young people at the time of interview, we note the strong contrast among, above all, on the one side Italy, where only 14% of men and 33% of women were married, and the other countries, in particular Poland, where 29% of men and 53% of women were married. This difference is the signal of the very different age at which young people reach economic independence and stability in these countries. Italy is also among the EU countries with the strongest territorial divide and the levels of unemployment, besides being the highest on average, are also the most disperse across NUTS1 regions (authors, 2020). The share of tertiary educated women is everywhere higher than the corresponding share for men. In Italy and Poland, the educational gender gap is very high. The information on the vocational content of education shows that a large number of young people attended it in Austria and Poland, while in the UK only 1 out of 4 young people attended it. However, its effectiveness is very high in the UK and above all in Austria, where the share of those who started to work before completing education is very high.

Finally, with reference to the degree of urbanization of the place of residence, it is interesting to note that while in the UK 65% of young people live in densely populated areas, in all other countries this share is about half.

Table 8 shows the results of the Cox semi-parametric function for the determinants of the duration of the STWT by gender for all the countries analyzed. The estimates include student-workers only if their work activity is linked to the vocational path of education; if not, they are excluded as they have not experienced the transition. We propose two models for the analysis. Model 1 contains only a selection of strictly exogenous covariates. They include nationality, gender, level and type of education, age, and place of residence (in terms of degree of urbanization). Model 2 adds to these covariates civil status, the regional unemployment rate and a dummy reflecting whether the individual has received any unemployment benefit. Cross-country comparisons are made explicit interacting the covariates with the country dummy variables. Models 1 and 2 are presented for the entire sample and by gender. The reference categories are: Italian migrants from the EU and Italian migrants from other countries while EU-migrants were not considered for Poland due to the extremely low number of individuals in the sample. Italian singles are the reference category for marital status while Italian low educated people are the reference category for the level of education. No one in the sample from the UK has a post-secondary level of education as defined by EU-SILC (ISCED level 4, indicating post-secondary, not tertiary education) while in the Italian sample there are not student-workers with a vocational path of education. Finally, no one in the UK sample perceives a benefit for unemployment.

[Table 8 near here]

Coefficients are reported in terms of hazard ratios, obtained by taking the exponential of the estimated coefficient. A value greater than 1 for the hazard ratio denotes that an increase in the covariate correlates with an increase in the hazard rate. This implies an increase in the instantaneous job-finding rate at every duration and, at the same time, a reduction in the duration of the STWT. Conversely, figures smaller than 1 mean a reduction of the hazard rate, i.e. a longer survival time, associated to that covariate.

The estimated models confirm the expected outcomes. In comparison to migrants residing in Italy, migrants from extra-EU countries experience everywhere a longer STWT. When the country of origin is another EU country, migrant women have a longer transition only in Austria. The analysis of the marital status shows fast transitions for all men while for women being not single increases the duration of transition only in Italy and Poland, with hazard rates, respectively, of 0.67 and 0.63. With reference to education, being more educated significantly reduces the STWT everywhere, with a hazard which increases with the level of education and reaches its maximum for the tertiary educated in the UK and Poland, with a hazard rate higher than 3 for men and even higher than 4 for women. In the other

countries, the premium in terms of reduction in the STWT duration is higher for women, as well. Another important result concerns the effectiveness of the vocational path of education in reducing the duration of the STWT in Austria, where the hazard rates are higher than 5 for men and even higher than 7 for women. We find similar results, even if with smaller hazard rates, for the UK, confirming that in these countries a vocational path of education is a significant entry door in the labour market. As for the degree of urbanization of the place of residence, the only significant result concerns the penalization of Italian young people living in densely populated areas in comparison to those living in rural areas, but this penalization appears to be significant only for men. Finally, with reference to the variables connected with the labour market characteristics, that is the regional unemployment rate and the unemployment benefits perception, they tend to significantly penalize Austrian young people in comparison to the Italian ones. This outcome suggests that labour market characteristics are the main factor of the Italian young people disadvantage.

In table 9, we collapse one of our initial assumptions, by considering completed the transition also for those who have got in the past a stable job but are unemployed or inactive at the time of the interview. They represent about the 33% of Italian and Polish young women while for men the corresponding percentage reaches its maximum in Italy, with 13.69%, highlighting the stronger vulnerability of female condition in the labour market since the first work experience and the major level of precariousness of the Italian labour market. Results are all substantially similar to the previous ones, highlighting only some reduction in the general level of the hazard rates.

We now turn to the smoothed baseline hazard estimates, which are presented in Figure 1, by education level for the entire sample and by gender, respectively. As already noted in the methodological section, these functions, for which we do not make any assumption regarding the shape, measure the probability distribution of exiting the STWT at a given point in time for those who are still in the transition.

[Figure 1 near here]

Through the flexible semi-parametric approach, we cannot correct for unobserved heterogeneity introducing the correction for frailty. However, through the smoother hazard estimates, instead of imposing a theoretical pattern to the hazard curve, we observe its empirical pattern, making it possible to account for its non-linearity. In this way, we observe that the hazard function is non-linear: it is increasing at the beginning and decreasing subsequently. In our case, the probability of exiting increases in the first period of the STWT, but it tends to reduce after the first years. This is a very interesting result that parametric models do not allow detecting, as they only allow for positive or negative duration dependence. In reason of the previous descriptive and econometric results, it may be due to the fact that in Austria, Poland and the UK the majority of young people find a job very quickly, in most cases during the first year of the transition. Therefore, those who remain after the first year in the STWT are mainly those who choose to be inactive for whatever reason. Conversely, for Italian young people, especially the low-educated one, the hazard is very low during the whole period of STWT, indicating a very harsh scenario.

The increasing hazard rate for low and medium levels of education is in line with previous findings of the Authors (2020), based on parametric survival models of positive duration dependence. It suggests that some form of "learning by searching" is taking place: young people tend to learn how to search for their best job match and, at the same time, accumulate the work experience they need to overcome their experience gap compared to older adults, becoming more employable for firms (Pastore 2015)[1].

The finding regarding university graduates may be interpreted as a tendency to have an advantage in the labor market that should be exploited soon, because it reduces over time, probably because some university degrees are less in demand and force some young people into unemployment or inactivity. We do not have information on the field of study in the EU-SILC data, but evidence coming from other

studies suggests that not only Arts and Humanities, but also Geology, Psychology, and Biology, as well as, more recently, Law, might decrease the probability of finding a job, at least in the early stage of the transition (see also Anelli, 2020).

The average reduction in the hazard rate for university graduates after the first few years is especially prevalent among women. For men, the hazard rate seems to increase with the duration of the STWT, including university graduates. This might further strengthen the hypothesis that the field of study matters, because the fields of study mentioned above are especially chosen by women.

Another interesting feature of the figures is the high variability of the estimated distributions, as measured by the confidence interval of the functions at different duration levels. The intervals tend to dramatically increase with duration. In particular, they are shorter for the highly educated, regardless of gender, even if with a greater variability. This suggests that with increasing duration of the STWT, the heterogeneity of the sample increases dramatically and we have on the one hand some people with very high chances of finding a job after waiting for a long time and other people who tend to become discouraged and move to the inactive status.

5. Discussion, Conclusions, and Policy Implications

In this paper, we provide different summary measures of the duration of the STWT by education and gender in Italy and compare them with the corresponding measures in three other European countries: Austria; Poland; and the UK. The geographical perspective allows us to highlight better the hardship that Italian young people experience, due to the specific characteristics of labor-market institutions and the education system. Looking only at the transition to any type of work, as has been done in previous research (Eurostat, 2012), may not be fully satisfactory in the case of Italy in terms of providing a full picture of the hardship of the transition. That is why we examined transition to a regular job, which is much closer to the ILO concept of a stable job or a job that is considered satisfactory for a young person. Only then can the young person consider the STWT complete. According to the Eurostat definition, a regular job is any job that lasts at least six months, even if temporary.

We distinguish between complete durations, which are calculated only for those who have obtained a stable job at the time of interview, and total durations, which include also those who have still not completed the transition, calculating the time from the end of studies till the time of the interview. The cross-country differences mirror the differences in the transition regime that these countries have. They are already apparent in the distribution of young people according to the level of education attained. In Italy, only two out of 10 reach tertiary education, while this figure is over 30% in Austria and Poland, and overcomes 40% in the UK. In all the countries studied, women are more educated than men, but they usually experience longer STWT. In other words, despite their higher level of education, on average, women are less likely to complete the transition and are more penalized in terms of the duration of the STWT, and this is not only an Italian outcome. And the gender gap does not close even with a university degree.

The STWT is longer in Italy, where it reaches a mean average of just over two years for complete durations. However, remarkable differences can be detected by education level and gender. Italian women with a low level of education have, for complete duration, a mean of six years, which becomes 11 years when incomplete transitions are also included. The condition of Italian men is slightly better, with 5.72 and 7.86 years, respectively. The mean durations in the other countries considered are systematically lower.

Moreover, in order to better highlight the personal characteristics associated with longer durations in Italy, we estimated a semi-parametric Cox model for the duration by gender. To detect differences across countries, we interact each variable with the country dummies in the same pooled regression.

The survival function shows that being a woman is associated with a significant penalty. The

coefficient for gender shows an hazard rate of 0.6, which means a strong penalization, even when we control for all the personal and contextual characteristics. For women, only the attainment of a tertiary degree is able to significantly reduce the duration of the STWT while, for men, the cumulative hazard is reduced for any level of education higher than primary. Likewise, being married increases the duration of the STWT for women while reducing it for men. The cross-country comparisons show a harsh scenario for Italian young people, which cannot rely on an effective vocational path, making the attainment of a tertiary degree still more important in reducing the duration of the STWT. In Italy, not even living in an urban area increases the labor-market opportunities for young people. However, when we control for the local levels of unemployment most of this disadvantage disappears.

Therefore, Italian young people are strongly penalized in the labour market in comparison to young people living in the other countries analysed. This explains why more and more young people, especially among the highly educated, are moving abroad to find a job (see Cattaneo et al., 2019 and references therein). Our analysis suggests that, overall, in Italy, if a young person graduates with a three-plus-two-year university degree at 24–25 years old (but with a mean deviation from the mean of almost three years, reaching therefore in some cases 28 years of age; see, among others, Aina et al. 2015; 2019; and 2021), he/she will find a more or less stable job at the age of 27–28 years on average; a large proportion of them, however, would not achieve this until 30–31 years of age. In the UK, a young person typically graduates at the age of about 22 years and finds a stable job at the age of 23 years. The consequences of these differences are dramatic in several respects. At 30–31 years of age, the UK contemporary of a young Italian peer has already acquired an average of 7-8 years of work experience and her/his human capital is clearly superior to that of an Italian of the same age. It will also include a work-related component, which is still almost completely missing in Italian peers.

Moreover, if long durations are the consequence of a rigid and sequential STWT regime, on the other hand, they explain, in turn, low enrolment into higher education and low educational attainment, especially tertiary-education attainment, as it dramatically affects the *ex ante* returns to education, on which such decisions are based (Altonji, 1993). More investment in education, vocational paths of education, and policies aimed at increasing the proportion of those with a high level of education could help give young people the adequate skills required in the labor market. However, it is apparent that these initiatives will not be sufficient if they are not associated with a range of active labor policies aimed at helping young people to enter the labor market.

Last but not least, since women tend to have the same work and career aspirations as men, they find themselves in the condition of establishing a family and deciding to have children at an age when their fertility is much lower, which partly explains why the country has moved in a few decades from being one of the countries with the highest fertility rate in the EU to one of the lowest. We submit, therefore, that a long STWT should be considered an important and integral part of what Bettio (1998) called the Mediterranean model of the relationship between participation and fertility.

The policy implications of this study are manifold and important. First, the Italian STWT regime, like all the other South Mediterranean regimes, should aim to restore stable economic growth to absorb the large cyclical component of youth unemployment and begin to reduce the longest durations of transition. Second, to reduce also the structural component of youth unemployment and further reduce the long-run average value of the duration of the STWT, it is necessary to include elements of duality in the education system, such as work-related learning, vocational education and training at a the higher-secondary- and tertiary-level of education, apprenticeships, and an active labor-market policy to a much larger extent than currently exists.

Future research should develop an econometric model of the macroeconomic determinants of the duration of the STWT across EU countries and over time. A major obstacle to such an endeavor would be the lack of systematic statistical information regarding the characteristics of the education system. This would force researchers to focus only on labor-market institutions, but a main conclusion of this study is that also the characteristics of the education system matter when assessing the smoothness of the STWT in a country.

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Table 1. A comparison between LFS and EU-SILC data

	Variables	
	EU-SILC	LFS
Starting point of the STWT	PE030: year of study completion	HATYEAR, MONTHYEAR: year and month of study completion
Ending point of the STWT	PL190 *(date when an individual attained the first regular job*, defined as "any paid work activity that has lasted for at least six months, including temporary work, but excluding seasonal and occasional work")	No (variable STARTIME reports the number of years the individual has spent in the current job, without providing information on the past work experiences)
Highest level of education attained	PE040: highest level of education attained and type of path, but no distinction between ISCED 5,6,7,8 for many countries	HATLEVEL: highest level of education attained
General or vocational path	No	HATVOC: general/vocational
Field of study	No	HATFIELD: field of study
Finale grade	No	No
Experience in terms of training or additional education received during the STWT	No	No
Territorial detail	NUTS1	NUTS2

Table 2. Distribution of Individuals 18–34 Years Old by Gender and by Level of Education Attained and Share of Student-workers in Selected European Countries

Level of education	*Men*		*Women*	
	%	*% student-workers*	*%*	*% student-workers*
Italy				
Compulsory or below	27.85	2.47	23.92	0.94
Higher secondary	57.57	10.23	50.17	8.41
Tertiary	14.58	24.79	25.90	20.93
All	100	11.88	100	10.87
N	2,484	2,484	2,352	2,352
Austria				
Compulsory or below	17.61	8.57	16.00	2.01
Higher secondary	49.97	63.35	43.75	54.36
Tertiary	32.42	52.03	40.25	44.89
All	100	50.03	100	41.17
N	844	844	904	904
Poland				
Compulsory or below	9.84	2.84	4.36	0.55
Higher secondary	61.59	16.91	47.99	11.66
Tertiary	28.57	57.11	47.65	47.82
All	100	27.01	100	28.41
N	2,076	2,076	2,084	2,084
UK				
Compulsory or below	17.00	18.64	9.82	9.07
Higher secondary	39.64	35.68	39.62	30.86
Tertiary	43.35	43.54	50.55	44.53
All	100	36.19	100	35.63
N	1,424	1,424	1,610	1,610

Source: own elaborations on EU-SILC data.

Table 3. Mean Age of Study Completion by Education Level and Gender in Selected European Countries (18–34 Years Old)

Level of education	*Italy*		*Austria*		*Poland*		*UK*	
	Men	*Women*	*Men*	*Women*	*Men*	*Women*	*Men*	*Women*
Compulsory or below	14.16 (1.96)	14.16 (1.74)	15.54 (1.25)	15.28 (1.57)	16.10 (1.39)	16.09 (1.36)	17.58 (2.71)	17.33 (3.01)
Higher secondary	19.03 (2.06)	18.99 (1.75)	19.35 (2.24)	19.46 (2.36)	19.66 (1.63)	19.65 (1.59)	18.37 (2.68)	18.48 (3.06)
Tertiary	25.09 (2.81)	24.91 (2.61)	23.51 (3.96)	23.41 (3.47)	24.64 (1.76)	24.42 (1.74)	22.27 (2.78)	22.27 (2.86)
All	100	100	100	100	100	100	100	100
N	2,484	2,352	844	904	2,076	2,084	1,424	1,610
Weighted N	2.515	2.321	902	846	2,027	2,133	1,424	1,610

Note: Standard deviations are between parentheses.
Source: Author's own elaborations based on EU-SILC data.

Table 4. Mean Age When Individuals 18–34 Years Old attained Their First Regular Job by Level of Education and Gender in Selected European Countries

Level of education	*Italy*		*Austria*		*Poland*		*UK*	
	Men	*Women*	*Men*	*Women*	*Men*	*Women*	*Men*	*Women*
Compulsory or below	19.64 (3.81)	20.26 (4.06)	16.46 (1.82)	17.36 (2.94)	18.94 (2.54)	19.53 (2.62)	17.40 (1.65)	18.20 (2.63)
Higher secondary	20.83 (2.96)	21.01 (3.11)	16.67 (2.25)	17.29 (2.75)	20.00 (2.29)	20.63 (2.61)	17.55 (1.67)	17.55 (1.84)
Tertiary	24.78 (3.17)	24.59 (3.00)	20.55 (3.78)	21.01 (3.04)	22.30 (2.88)	22.68 (2.70)	20.19 (2.76)	20.07 (2.90)
All	100	100	100	100	100	100	100	100
N	1,967	1,499	737	656	1,852	1,428	1,262	1,261

Note: Includes only complete transitions at the time of interview. Student-workers are included in the analysis. Standard deviations are between parentheses.

Table 5. Distribution of Durations of the STWT for Complete and Incomplete Transitions in Selected European Countries (by Education Level; 18–34 Years Old).

Level of education	*Men*			*Women*		
	% compl.	*Transition completed*	*All*	*% compl.*	*Transition completed*	*All*
		Mean (sd)	*Mean (sd)*		*Mean (sd)*	*Mean (sd)*
Italy						
Compulsory or below	63.82	5.72 (4.03)	7.86 (5.25)	31.65	6.02 (4.29)	11.44 (6.05)
Higher secondary	74.85	2.29 (2.57)	3.34 (3.54)	58.02	2.49 (2.79)	4.89 (4.61)
Tertiary	80.49	0.88 (1.44)	1.48 (2.25)	72.42	0.97 (1.47)	1.85 (2.51)
All	72.60	2.90 (3.32)	4.32 (4.56)	55.44	2.46 (3.13)	5.67 (5.75)
N	2,484	1,967	2,484	2,352	1,499	2,352
Austria						
Compulsory or below	82.04	1.10 (1.52)	2.46 (3.75)	47.06	2.01 (3.47)	7.34 (6.58)
Higher secondary	82.71	0.28 (0.97)	1.26 (3.20)	76.22	0.48 (1.62)	2.63 (4.65)
Tertiary	91.75	0.32 (0.87)	0.49 (1.24)	77.51	0.19 (0.62)	1.64 (3.36)
All	85.52	0.44 (1.09)	1.22 (2.92)	72.07	0.51 (1.70)	2.99 (4.97)
N	844	737	844	904	656	904
Poland						
Compulsory or below	73.26	3.12 (2.57)	4.89 (4.59)	37.38	3.36 (2.83)	8.49 (6.08)
Higher secondary	88.01	0.94 (1.75)	1.57 (2.96)	63.93	1.42 (2.19)	3.94 (4.67)
Tertiary	97.20	0.32 (0.89)	0.46 (1.34)	85.38	0.35 (1.04)	1.10 (2.31)
All	89.18	0.92 (1.77)	1.58 (3.07)	73.00	0.87 (1.79)	2.78 (4.25)
N	2,076	1,852	2,076	2,084	1,428	2,084
United Kingdom						
Compulsory or below	83.34	0.66 (1.26)	2.03 (4.03)	58.47	1.20 (2.25)	4.58 (5.58)
Higher secondary	91.52	0.52 (1.18)	0.91 (2.02)	77.37	0.54 (1.15)	2.35 (4.14)
Tertiary	94.30	0.22	0.57	85.78	4.05	1.30

		(0.79)	(1.84)		(4.99)	(3.17)
All	91.33	0.41 (1.01)	0.95 (2.47)	79.77	0.42 (1.13)	2.04 (3.98)
N	1,424	1,262	1,424	1,610	1,261	1,610

Note: Student-workers are included in the analysis.
Source: Author's own elaborations based on EU-SILC data.

Table 6 Share on unemployed and inactive by gender among the sub-sample of those who have not completed the transition.

Italy	Men		Women		All	
	unemployed	inactive	unemployed	inactive	unemployed	inactive
	93.04	6.96	62.84	37.16	74.23	25.77
Level of education						
Low	36.65	38.32	28.65	47.68	32.78	46.69
Medium	53.48	44.96	53.28	39.05	53.39	39.68
High	9.87	16.73	18.07	13.26	13.83	13.63
Marital status						
Single	95.31	93.37	84.06	25.34	89.87	32.53
Other	4.69	6.63	15.94	74.66	10.13	67.47
Inactive fulfilling domestic tasks		56.29		93.61		89.67
Year when the highest level of education was attained (average, min and max)	2010 [1997 2018]	2008 [1997 2018]	2010 [1995 2018]	2006 [1994 2018]	2010 [1995 2018]	2006 [1994 2018]
Median year	2011	2007	2011	2005	2011	2005
N	481	36	536	317	1017	353
Austria	Men		Women		All	
	unemployed	inactive	unemployed	inactive	unemployed	inactive
	84.29	15.71	24.19	75.81	37.42	62.58
Level of education						
Low	24.99	46.88	40.00	26.37	32.07	27.80
Medium	61.04	44.41	42.47	35.09	52.28	35.74
High	13.97	8.71	17.53	38.54	15.65	36.46
Marital status						
Single	76.07	79.34	69.68	34.55	73.06	37.67
Other	23.93	20.66	30.32	65.45	26.04	62.33
Inactive fulfilling domestic tasks		16.87		93.89		88.52
Year when the highest level of education was attained (average, min and max)	2010 [1998 2017]	2010 [2001 2017]	2008 [1998 2017]	2009 [1995 2017]	2009 [1998 2017]	2009 [1995 2017]
Median year	2011	2010	2008	2009	2010	2009
N	59	11	60	188	119	199
Poland	Men		Women		All	
	unemployed	inactive	unemployed	inactive	unemployed	inactive
	70.09	29.91	32.16	67.84	41.82	58.18
Level of education						
Low	24.45	24.01	8.59	10.83	15.80	12.70
Medium	67.15	70.99	68.25	62.12	67.75	63.37
High	8.40	5.00	23.17	27.05	16.45	23.93
Marital status						
Single	93.18	96.81	60.20	28.18	75.20	37.90
Other	6.82	3.19	39.80	71.82	24.80	62.10
Inactive fulfilling domestic tasks		6.79		60.20		52.63
Year when the highest level of education was attained (average, min and max)	2010 [1999 2018]	2012 [2001 2018]	2011 [1999 2018]	2010 [1999 2018]	2011 [1999 2018]	2010 [1999 2018]
Median year	2011	2014	2011	2010	2011	2010
N	157	67	211	445	368	512
United Kingdom	Men		Women		All	
	unemployed	inactive	unemployed	inactive	unemployed	inactive
	73.46	26.54	21.20	78.80	37.77	62.23
Level of education						

Low	36.27	24.10	19.95	20.23	29.07	20.78
Medium	39.79	36.38	50.33	42.45	44.44	41.60
High	23.95	39.52	29.73	37.32	26.50	37.63
Marital status						
Single	94.30	72.68	88.28	45.39	91.65	49.22
Other	5.70	27.32	11.72	54.61	8.35	50.87
Inactive fulfilling domestic tasks		32.45		82.84		75.78
Year when the highest level of education was attained (average, min and max)	2012 [2000 2018]	2011 [2000 2017]	2012 [2000 2018]	2009 [1994 2018]	2011 [2000 2018]	2009 [1994 2018]
Median year	2013	2013	2012	2009	2013	2009
N	119	43	74	275	193	318

Note: Those who declared as current economic status "In compulsory military community or service" have been dropped from the analysis.

Table 7 Variables used in the Cox proportional model and descriptive statistics. Mean/proportion and standard deviation.

Variables	*Austria*		*Italy*		*Poland*		*UK*	
	men	*women*	*men*	*women*	*men*	*women*	*men*	*women*
Personal characteristics								
Immigration background								
Nationality	*0.760 (0.427)*	*0.730 (0.444)*	0.827 (0.378)	*0.790 (0.407)*	*0.995 (0.073)*	*0.995 (0.073)*	*0.824 (0.381)*	*0.790 (0.415)*
Country of origin: EU	0.080 (0.271)	0.095 (0.294)	0.039 (0.194)	0.061 (0.239)	0.002 (0.052)	0.002 (0.042)	0.094 (0.292)	0.111 (0.315)
Country of origin: Extra-EU	0.160 (0.367)	0.172 (0.378)	0.130 (0.336)	0.142 (0.350)	0.003 (0.051)	0.004 (0.060)	0.079 (0.270)	0.107 (0.310)
Civil status								
Single	0.811 (0.391)	0.657 (0.475)	0.859 (0.347)	0.665 (0.472)	0.710 (0.454)	0.474 (0.499)	0.772 (0.419)	0.648 (0.478)
Other (married, separated divorced, widowed)	0.189 (0.391)	0.342 (0.475)	0.140 (0.347)	0.334 (0.472)	0.290 (0.454)	0.526 (0.499)	0.228 (0.419)	0.352 (0.478)
Age	26.699 (4.960)	27.590 (4.524)	27.875(4.251)	28.334 (4.129)	27.783 (4.273)	28.534 (4.067)	26.777 (4.615)	27.314 (4.553)
Level of education								
Less than secondary education	*0.012 (0.108)*	*0.007 (0.085)*	*0.018 (0.134)*	*0.011 (0.107)*	*0.030 (0.172)*	*0.018 (0.132)*	-	*0.001 (0.030)*
Lower secondary education	*0.190 (0.393)*	*0.187 (0.390)*	0.284 (0.451)	0.251 (0.434)	*0.101 (0.301)*	*0.043 (0.202)*	*0.187 (0.390)*	*0.122 (0.327)*
Upper secondary education	0.583 (0.493)	0.491 (0.500)	0.571 (0.495)	0.501 (0.500)	0.690 (0.462)	0.546 (0.498)	0.482 (0.500)	0.490 (0.500)
Post-secondary (non-tertiary) ed.	0.020 (0.139)	0.040 (0.195)	0.004 (0.063)	0.009 (0.094)	0.011 (0.104)	0.046 (0.209)	-	-
Tertiary education	0.195 (0.396)	0.275 (0.447)	0.122 (0.327)	0.227 (0.419)	0.168 (0.374)	0.347 (0.476)	0.331 (0.471)	0.387 (0.487)
Vocational education	0.551 (0.498)	0.457 (0.498)	-	-	0.530 (0.499)	0.386 (0.487)	0.231 (0.422)	0.259 (0.438)
Vocational ed. and student worker	0.373 (0.484)	0.283 (0.451)	-	-	-	-	0.137 (0.344)	0.112 (0.316)
Framework variables								
Unemployment benefits (ref. no)	0.228 (0.420)	0.2111 (0.408)	0.258 (0.438)	0.224 (0.417)	0.008 (0.091)	0.022 (0.148)	-	-
Regional unemployment rate	4.974 (1.810)	4.763 (1.777)	12.205 (5.747)	12.305 (5.769)	3.884 (0.979)	3.839 (0.968)	4.027 (0.669)	4.042 (0.674)
Degree of urbanization								
Rural	0.360 (0.480)	0.354 (0.478)	0.254 (0.435)	0.258 (0.437)	0.479 (0.500)	0.452 (0.498)	0.099 (0.299)	0.087 (0.283)
Intermediate level	0.316 (0.465)	0.326 (0.469)	0.401 (0.490)	0.417 (0.493)	0.225 (0.418)	0.225 (0.418)	0.269 (0.443)	0.258 (0.437)
City	0.323 (0.468)	0.321 (0.467)	0.344 (0.475)	0.325 (0.469)	0.296 (0.457)	0.323 (0.468)	0.632 (0.482)	0.654 (0.476)
N	671	727	2199	2095	1554	1549	1068	1181

Table 8. Determinants of STWT Duration by Gender Using the Cox Semi-parametric Function(*).

Variables	Men		Women		All	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Women	-	-	-	-	0.595^{***}	0.622^{***}
Nationality (ref. migrant IT)						
Migrant from EU Austria	1.024	1.058	0.724^{**}	0.757^{*}	0.844^{*}	0.900
Migrant from EU UK	1.417^{***}	1.351^{***}	1.321^{***}	1.329^{***}	1.378^{***}	1.349^{***}
Migrant extra EU Austria	0.874	0.895	0.558	0.719^{**}	0.698^{***}	0.818^{**}
Migrant extra EU Poland	0.475	0.436	0.526	0.576	0.524^{*}	0.542^{*}

Migrant extra EU UK	0.690***	0.646***	0.542***	0.582***	0.601***	0.596***
Marital status (ref. single IT)						
Single AT		3.120***		2.278***		1.539***
Single PL		1.493***		1.104		0.816**
Single UK		2.455***		2.464***		1.509**
Other (married, separat., etc.) AT		3.209***		1.253		1.096
Other (married, separat., etc.) IT		1.339***		0.669***		0.829***
Other (married, separat., etc.) PL		2.113***		0.635**		0.659***
Other (married, separt., etc.) UK		3.319***		1.893***		1.448**
Benefits for unemployment (ref.IT)						
Benefits AT		0.677***		0.777***		0.736***
Benefits PL		0.480*		0.473**		0.467***
Level of education (low IT)						
Low AT	1.163		0.834		1.000	
Low PL	1.203		1.389		1.200	
Low UK	1.987***		1.941***		1.926***	
Upper secondary ed. AT	0.9398	0.794	1.590	1.617***	1.260	1.139
Upper secondary ed. IT	1.868***	1.938***	2.398***	2.191***	2.017***	1.974***
Upper secondary ed. PL	2.393***	1.971***	3.034***	2.483***	2.270***	1.974***
Upper secondary ed. UK	3.162***	1.583***	3.378***	1.800***	3.030***	1.585***
Post-secondary AT	0.992	0.915	1.668	1.574**	1.407	1.274
Post-secondary IT	1.889**	1.943**	2.715	2.429***	2.175***	1.298
Post-secondary PL	1.414	1.240	3.105***	2.547***	1.716***	1.492***
Tertiary education AT	2.005	1.678***	1.494	1.736***	1.633	1.564***
Tertiary education IT	2.535***	2.691***	3.772***	3.355***	3.045***	1.786***
Tertiary education PL	3.382***	2.800***	4.525***	3.942***	3.233***	2.834***
Tertiary education UK	3.403***	1.680***	4.284***	2.332***	3.610***	1.860***
Vocational AT	0.695	0.767	0.421***	0.481***	0.524***	0.580***
Vocational PL	1.112	1.155**	0.891	0.907	1.059	1.059
Vocational UK	0.774*	0.766*	0.651***	0.644***	0.715***	0.708***
Vocational student worker AT	5.943***	5.438***	7.433***	7.092***	6.278***	5.903***
Vocational student worker UK	2.999***	2.874***	4.849***	4.927***	3.779***	3.744***
Degree of urbanization (ref.rural IT)						
Rural area AT	1.980		2.326		2.006*	
Rural area PL	1.150		0.785		1.060	
Rural area UK	1.059		1.155		1.092	
Intermediate degree AT	2.001	0.995	2.516*	1.071	2.147**	1.055
Intermediate degree IT	0.999	0.991	1.070	1.066	1.023	1.007
Intermediate degree PL	1.131	0.972	0.826	1.048	1.073	1.003
Intermediate degree UK	0.935	0.885	1.232***	1.056	1.058	0.970
City AT	1.587	0.851**	2.156	0.904	1.769	0.900*
City IT	0.798***	0.800***	0.983	0.969	0.871***	0.828***
City PL	1.101	0.958	0.968	1.160**	1.157	1.074
City UK		0.968		0.885		0.943
Unemployment rate (ref. IT)						
Austria		0.966**		0.986		0.974**
Poland		0.972		0.992		0.984
UK		0.965		0.941		0.945*
Age	0.998**	0.995***	0.988***	0.993***	0.993***	0.996***
Wald chi	4097.16***	3902.50***	3922.33***	3599.01***	6811.07***	6444.45***
N	5492	5492	5552	5552	11044	11044

Note: Coefficients are expressed in terms of hazard ratios.

(*) Student-workers are included in the analysis only if they have attained a vocational level of education. For this reason, the sample size is reduced in comparison to that of previous tables.

(**) Age is interacted with time.

Table 9. Determinants of STWT Duration by Gender Using the Cox Semi-parametric Function considering completed the transition also for those who had in the past a regular job but not in employment at the time of interview.

Variables	Men		Women	
	Model 2	Model 2	Model 1	Model 2
Nationality (ref. migrant IT)				
Migrant from EU Austria	1.000	1.023	0.661***	0.707***
Migrant from EU UK	1.529***	1.391***	1.472***	1.412***
Migrant extra EU Austria	0.887	0.886	0.568***	0.720***
Migrant extra EU Poland	0.531*	0.493*	0.739**	0.781**
Migrant extra EU UK	0.800*	0.739***	0.572***	0.580***
Marital status (ref. single IT)				
Single AT		1.760***		0.910
Single PL		0.887		0.590***
Single UK		1.418		1.257
Other (married, separat., etc.) AT		1.847***		0.606***
Other (married, separat., etc.) IT		1.210***		0.561***
Other (married, separat., etc.) PL		1.263**		0.432***
Other (married, separt., etc.) UK		2.010***		1.069***
Benefits for unemployment (ref.IT)				
Benefits AT		0.738***		0.874**
Benefits PL		0.746		0.958
Level of education (low IT)				
Low AT	1.240		0.815	
Low PL	1.232		1.751***	
Low UK	2.277***		2.991***	
Upper secondary ed. AT	1.321	0.971	2.502**	2.178***
Upper secondary ed. IT	2.382***		4.870***	
Upper secondary ed. PL	2.735***	2.081***	4.565***	2.731***
Upper secondary ed. UK	3.578***	1.527***	5.276***	1.817***
Post-secondary AT	1.366	1.072	2.934**	2.385***
Post-secondary IT	2.248***	1.266	7.896***	2.163***
Post-secondary PL	1.933**	1.536*	6.361***	3.634***
Tertiary education AT	2.688**	1.906***	3.187***	3.024***
Tertiary education IT	3.718***	2.039***	9.818***	2.751***
Tertiary education PL	4.085***	3.017***	8.179***	4.804***
Tertiary education UK	4.054***	1.664***	7.577***	2.565***
Vocational AT	0.976	1.080	0.640***	0.728***
Vocational PL	1.090	1.128**	0.890**	0.903*
Vocational UK	0.865	0.853	0.905	0.872
Vocational student worker AT	3.908***	3.464***	5.098***	4.683***
Vocational student worker UK	2.951***	2.673***	4.493***	4.257***
Degree of urbanization (ref.rural IT)				
Rural area AT	1.904		2.746**	
Rural area PL	1.246		1.146	
Rural area UK	1.051		1.170	
Intermediate degree AT	1.875	0.968	3.093***	1.106*
Intermediate degree IT	1.006	0.993	1.000	0.935*
Intermediate degree PL	1.224	0.973	1.175	1.017
Intermediate degree UK	0.922	0.891	1.222***	1.044
City AT	1.547	0.857**	2.815***	1.004
City IT	0.810***	0.770***	.915*	0.779***
City PL	1.227	0.980	1.373	1.158***
City UK		0.978		0.914
Unemployment rate (ref. IT)				
Austria		0.969**		0.981***

Poland		0.977		0.987
UK		0.980		0.921*
Age	0.986***	0.988***	0.975***	0.983***
Wald chi	4140.73***	3917.31***	3812.23***	4037.60***
N	5492	5492	5552	5552

Note: Coefficients are expressed in terms of hazard ratios.
(*) Student-workers are included in the analysis only if they have attained a vocational level of education. For this reason, the sample size is reduced in comparison to that of previous tables.
(**) Age is interacted with time.

Figure 1. Smoothed Hazard Estimates by Education Level and by Gender.