The school-to-work transition: What affects mainly its duration?

Floro Ernesto Caroleo
Francesco Pastore
Claudio Quintano
Antonella Rocca

Abstract

The transition from school to work (STW) involves the period between leaving the education system and entering the world of work until the achievement of a stable job. It represents a critical steps in the life cycle of an individual because he/she suffers a disadvantage in comparison with the older experienced workers, due to the lack of work experience and also in searching for a job.

In this paper, we analyze the main determinants of STW duration in a selection of 21 European countries through survival models. The latter allow for an estimate of the probability to exit from the STW transition over time. Data come from EU-SILC and refer to young people completing their studies from 2011 to 2015, following their professional status until two years from the end of studies, respectively from 2013 to 2017.

This paper contributes to the literature on the analysis of the factors influencing the initial experience of young people in the labour market in a broad perspective, including information at individual and regional or national level (clusters of socio-economic, institutional and cultural factors). Our hypothesis is that factors able to explain the strong differences among EU countries are ascribable mainly to the different transition regimes, which depend, above all, by the different characteristics of the education systems. The identification of the factors affecting the duration of the STW transition could help policy makers to act removing the main obstacles to the entrance of young individuals in the labour market.

1. Introduction

The transition from school to work (STW) can be defined as the period between the end of studies until the achievement of a stable job. It represents one of the most critical steps in the individuals' life cycle. Indeed, when young people enter in the labour market, they suffer a disadvantage in comparison with the older experienced workers, because they lack the work experience and also the experience in job search.

Young people's opportunities of finding work vary significantly according their personal characteristics, the factors linked to the labour market functioning, the transition regimes and Institutions in force.

European countries differ a lot according to the labour market characteristics and also in relation to the conditions of young people in the labour market both in absolute terms and in comparison to the adult ones, that is according to their relative disadvantage. Consequently, also the duration of the STW transition is very different across countries.

In this paper, we analyse the differences across countries in the duration of the STW transition and the main determinants of this duration. The analysis involves a selection of 21 European countries with different types of education system and different characteristics of labour market (Winefield and Tiggemann, 1990). One of the main scopes of the analysis is to verify the role played by the various national and regional factors contributing to define the different configurations of transition regulations, including socio-economic, institutional and cultural factors which interact each others. At this aim, we considered the Hadjivassiliou et al. (2016) countries classification – which started from the concept of welfare regimes theorized by Esping-Andersen (1990) first, and youth transition regimes developed by Pohl and Walther (2007) later . The statistical methodology is based on the Weibull parametric survival model, which allows analyzing the individual trajectories and estimating the probability to exit from the school-to-work transition at the various time units. Data come from EU-SILC survey and refer to young people completing their studies from 2011 to 2015, following their professional status until two years from the end of studies, respectively from 2013 to 2017.

This paper contributes to the literature on the analysis of the factors influencing the initial experience of young people in the labour market in a broad perspective, including information at individual and regional or national level (clusters of socio-economic, institutional and cultural factors). Data availability allows us to study young trajectories only for about 24 months. However, the experiences lived in this period are crucial and deeply affect the choices taken later. Our hypothesis is that factors able to explain the strong differences among EU countries are ascribable mainly to the different transition regimes, which depend, above all, by the different characteristics of the education systems. The identification of the factors affecting the duration of the STW transition could help policy makers to act removing the main obstacles to the entrance of young individuals in the labour market.

This paper is organized as follows. Section 2 introduces NEETs and the school-to-work transition features, while Section 3 describes the data used for the analysis. Section 4 presents the statistical methodology and Section 5 the main results. Last, Section 6 concludes.

2.The school-to work transition

Transitions from school to achieving a stable job constitutes an important juncture in the lifelong process for all learners, as they move from more known, predictable environments, and more clearly defined pathways, into new open, less controlled and less certain and predictable terrain (Pavlova et al., 2017).

The duration of this step of individual's life cycle is affected by many factors, including both personal factors and characteristics linked to the place where he/she lives, that can be measured at national or at regional level, given the strong heterogeneity characterizing the different areas within the same country in many EU member states. However, before starting the analysis of this duration of the STW transition, it is important to define precisely what has to be included in this process. According to the already cited definition of STW transition, the process of moving from education or training to employment covers the period in which this change takes place. It is important to identify precisely its starting point and its ending point. The starting point is usually identified in any training programme and any level of education, but in a wider perspective it coincides with the end of compulsory school. The corresponding leaving age of compulsory school in EU countries is usually 16, with some exceptions. In Czech Republic, Greece, Croatia, Cyprus, Austria, Poland and Slovenia, it is fixed at 15 years. In Belgium, Germany, the Netherlands, Portugal it is 18. With reference to the ending point, it is identified with the achievement of a stable job. However, even on this point different definitions co-exist. For example, Eurostat identifies it with "the first significant job of at least 3 months" (source: https://ec.europa.eu/eurostat/statistics-explained/index.php/Archive:School-to-work_transition_statistics) while ILO refers to a job with a permanent contract. However, in light of the recent labour market reforms finalized to flexibility, regular even if temporary job represents, especially for young people, the most common type of contract. Therefore, the increased instability of the labour market and the wide diffusion of temporary contracts makes very difficult to identify the end point of the STW period, especially in countries where the youth labour market results particularly precarious (Lodovici and Semenza, 2012).

In this paper, we identify the starting point of the STW with the end of studies of an individual, regardless by the level of education attained. With reference to the end point, we refer to a stable job during at least six months, according to the approach followed by Eurostat in the EU-SILC survey.

The time spent during the school-to-work transition and the related experiences deeply affect the individuals' whole life and therefore the countries' economic and social prospects. (Ng and Feldman, 2007). During the STW transition period, young people are usually in the NEET status, that is in a status of inactivity or unemployment. Alternatively, they could be involved in occasional and unstable jobs, such as seasonal jobs.

With reference to literature on STW, many studies analyzed the crucial role of education and in particular of its vocational content in reducing the time spent in this process (Quintini et al., 2007). However, many contributions focused mainly on the role of institutions, in order to explain the so different performances

and durations among European countries. In tab. 1 a synthesis of the main transition regimes characteristics.

Table 1. – Characteristics of transition regimes in EU.

Type of transition regime	Education system	Institutions	Overlap between work and education	Outcomes of STW
Nordic	Sequential, providing only general education	Pro-active schemes	high	Quick and rather successful
Continental	Dual education system	Very developed	high	Quick and successful
Anglo-Saxon	Sequential, of high quality	Flexible, with low employment protection	low	Quick but with a higher variability
Mediterranean	Sequential	Underdeveloped and rigid, scarce active LMP	low	Very slow
Eastern	Vertical and sequential	Increasing flexibility and growing levels of spending in active and passive LMP	medium	Quite protracted but with high variability across countries

Nevertheless, every country classification is unable to account for all the aspects, because European countries show in some cases not clearly defined characteristics. For example, France and Slovenia only recently adopted a dual system of education. In other countries, recent reforms have been finalized to increase the vocational content of their educational path, that, unlike the successful experiences of continental countries such as Austria and Germany, result still ineffective and unable to really prepare young people to face up to the labour market. This is the case for example of Italy (Pastore, 2018). Finally, Belgium shows a peculiar education system which for some aspects is similar to Continental countries, but for other aspects it results very similar to the Mediterranean regime.

In this paper the attention has been focused on a homogeneous group of EU countries, excluding those that entered the European Union in the last years[1]. They are: of Austria, Germany, France, Luxembourg, the Netherlands and Switzerland, defining the so called Continental regime; Denmark, Finland, Norway and Sweden, which identify the Nordic regime; the liberal countries of Ireland and the United Kingdom, which characterize the homologous regime; Estonia, Hungary, Poland and Slovenia, as representative of the Eastern regime; finally, Belgium, Greece, Italy, Portugal and Spain, which constitute the Mediterranean regime. These countries share some similarities, especially in a strategic planning, but also several differences in the functioning of the labour market and education system.

[1] An exception are Norway and Switzerland, which, even if not EU members, exhibit characteristics highly similar to other EU member countries.

3. Data sources

The analysis involves individuals who at the time of interview were in the 16-34 age class. We excluded from the analysis those who already worked before finishing the studies, those who were enrolled in the military service and permanent disabled. We used cross-sectional EU-SILC data to detect the individual current professional status in the year *t* for those who finished their studies two years before, following for each month of year t-1 each change in their professional status. The analysis includes the EU SILC waves from 2013 to 2017.

Even if our analysis does not allow to control for the period from the month when the individual finishes their studies until the end of year t-2, we can observe the professional status of each individual until the moment of interview, for an average time of 24 months.
The factors affecting the school to work transition and its duration considered in the analysis are listed in Tab.2.

As concerns the level of education, in light of its extreme importance in determining the duration of the STWR, the analysis distinguishes those who attained tertiary education from the others.

Table 2. – Variables' definition: level of detail, source and year of observation.

Label[(*)]	**Meaning**	**Source**	**Year**
Personal characteristics	*(individual level)*		
Migration status			2015, 2016, 2017
EU migrant	Born in other EU country	EU-SILC	
Extra-EU migrant	Born in an extra-EU country	EU-SILC	
Sex	1=male	EU-SILC	2015, 2016, 2017
Marital status	1=married	EU-SILC	2015, 2016, 2017
Age		EU-SILC	2015, 2016, 2017
16-19 years	Teenagers	EU-SILC	
20-24 years	Young adults	EU-SILC	
Education level		EU-SILC	2015, 2016, 2017
Lower than upper secondary	Reference category	EU-SILC	
Upper-secondary	High school (ISCED 3)	EU-SILC	
Post-secondary	Non-tertiary ed. (ISCED 4)	EU-SILC	
VET educational path	*(reference category: general program path)* This information is available only for high school graduated and signals the Vocational Training path of personal education	EU-SILC	2015, 2016, 2017
Delay in attaining graduation	Who completes later than usual a given level of education	EU-SILC	2015, 2016, 2017
Family condition (poverty indicator)	Synthetic index measuring the family capacity: to afford rent, mortgage or utility bills; to keep home adequately warm; to face unexpected expenses; to eat meat or protein regularly; to afford paying for one week annual holiday away from home; and lack of possession of television set; washing machine; car; telephone	EU-SILC	2015, 2016, 2017

Macro-economic factors			
Per capita GDP (GDP)	(*NUTS 1 regional level*)	Eurostat	2015-2016-2017
GDP growth rate	(*NUTS 1 regional level*)	Eurostat	2015-2016-2017
Unemployment rate	(*NUTS 1 regional level*)	Eurostat	2015-2016-2017
Long-term unemployment rate	(NUTS 1 *regional level*)	Eurostat	2015-2016-2017
Investment in Research and Development (% GDP)	(*NUTS 1 regional level*)	Eurostat	2015-2016
Innovation (Regional Innovation Index)	(*NUTS 1 regional level*)	Cornell University, INSEAD; WIPO	2016
%25-30-year-old with temporary contract	(*NUTS 1 regional level*)	Eurostat	2015, 2016, 2017
Institutional characteristics	*(national level)*		
Tax wedge	Ratio of the amount of taxes paid by an average worker of single marital status and the corresponding total labour cost for the contractor or employer	OECD	2013
Union Density	Ratio of wage and salary earners that are trade union members, divided by the total number of wage and salary earners	OECD	2013
minimum salary		OECD	2013
Workers protection (Employ. Prot. Legisl.)		OECD	2013
Pillar 1(***)	Protection of permanent workers against individual and collective dismissals	OECD	2013
Pillar 2 (***)	Protection of permanent workers against (individual) dismissal	OECD	2013
Pillar 3 (***)	Specific requirements for collective dismissal	OECD	2013
Pillar 4 (***)	Regulation on temporary forms of employment	OECD	2013
Unemployment insurance	Monthly sums given for sustenance to employable persons who are unemployed through no fault of their own	OECD	2013
Unemployment assistance	Benefits finalized to eliminate or reduce poverty among low income families where unemployment occurs	OECD	2013
Total Active Labour Market Policies	Total Active Labour Market Programmes (it includes public employment services, training, hiring subsidies and direct job creations in the public sector, as well as unemployment benefits) as share of GDP	OECD	2016
Education system characteristics			
Share of expenses on GDP	Total general Government expenditure in education as share of GDP	Eurostat	2016
Share of tertiary education expenses on GDP	Public spending on tertiary education, including direct expenditure on educational institutions as well as educational-related public subsidies given to households and administered by educational institutions	OECD	2016
Teaching time	Net teaching time in hours in the upper secondary general programs	OECD	2017
Deficit in education	Mean score in math, science and reading, according to PISA survey	OECD	2015

Transition regime	*(national level)*		
Continental	AT,DE,LU,NL,CH,FR	EU-SILC	-
Nordic	Universalistic: SE,FI,NO,DK	EU-SILC	-
Liberal regime	UK,IE	EU-SILC	-
Eastern regime	EE, PL, HU, SI	EU-SILC	-
Mediterranean	(reference category) Common core CV: BE,ES,PT,IT,GR	EU-SILC	-

4. The statistical model

For the analysis of the duration of the individuals' period in STW, OLS estimates are not a good choice, because data result right censored for those that, at the end of the period of observation have still not found a job.

The statistical analysis is based on duration models, which are useful in cases like this, where he scope is the measurement of the time to an event of interest, that is the exit from the STW (Miller, 1997; Kleinbaum and Mitchel, 2012). The survival functions on which duration models are based show the probability that the duration of a certain status is greater than a fixed number of time units. According to the data nature, we need a function which takes into account that the probability of finding work decreases as the duration of unemployment increases, in accordance to the scarring effect economic theory for unemployment[2]. We used a parametric model and in particular the Weibull function, described by a scale parameter λ and shape parameter *p*. We expect a *p* greater than 1, denoting that the instantaneous hazard increases with time. The Weibull hazard and survivor functions are:

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

To account for unobserved heterogeneity or frailty, according to Jenkins (2005), we introduced it as an unobservable multiplicative effect, α, on the hazard function:

$$h(t|\alpha) = \alpha h(t)$$

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:

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

As $\lim_{\theta\to 0} S_\theta\,(t) = S(t)$, regardless of the choice of frailty distribution, the frailty model reduces to S(t) in case of absence of heterogeneity. The assessment of 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.

[2] According to the scarring effect theory, the risk of repeated unemployment and of being out of labour force increases as the period of an individual's unemployment increases (Manfredi et al., 2010).

5. Results (discussion)

The duration of the STW transition is simultaneously affected by personal and macro-economic factors.

Various model specifications have been estimated. We present only the best model, according to the significance tests and the parameters measuring the goodness of fit. Therefore, not all the covariates presented in Tab.2 are contained in the model specification reported in Tab. 3.

The estimates of the Weibull distribution are presented in terms of hazard ratios. In survival analysis, the hazard ratio measures the ratio of the hazard rates corresponding to the conditions described by two levels of an explanatory variable. A value greater than one for the coefficient of a given covariate shows that increases in the values of this covariate produce an increase in the probability of death, that is of exit from the survival analysis. In our study, the individuals' death corresponds to the exit from the STW transition and therefore to the achievement of a stable job. A value less than 1 means the opposite.

According to the personal characteristics, limiting to the observable socio-demographic aspects, a longer duration of the STW typifies individuals whose characteristics are widely identified in the literature as the factors connected with the most disadvantaged individuals, more at risk of social exclusion.

Many past studies have demonstrated that, especially for young people, gender is not by itself a significant factor if disadvantage. Only when gender is related to the status of married, its effects in the labour market are opposite for men and women. Indeed, being married creates disadvantage for women, but represents a vantage for men. Therefore, the interactions between civil status and gender have been analyzed, leaving as reference category that considered as the most disadvantaged, that is married-woman. All the other conditions significantly reduce the duration of the STW, increasing the probability of falling in the condition of worker. However, education represents a way to reduce inequalities among people. Indeed, the penalization for married women is stronger for not tertiary educated.

Other personal factors that significantly increase the duration of the STW transition are the condition of migrant, only if the country of provenance is extra-EU, a poor economic condition of the family of origin and the delay in attaining the highest level of education, but only for not tertiary educated. Conversely, age plays a different role according to two sub-groups identified according to the level of education.

Indeed, it is widely recognized that in performing analysis on young people and their professional status it is important to consider three age sub-groups: 16-19, 20-24 and 25-29, because each subgroup experiences different difficulties to complete the STW transition. While for the first age class a prolonged duration of the STW transition is mainly linked to early school dropouts, people in the age class 20-24 have to face mainly the difficulties in entering the labour market. Finally, for the 25-29 age class, it is primarily important to distinguish among those who are tertiary educated, because they have just completed their studies, and the other ones, for which being still in the STW transition highlights the inability to find a job, due to the lack of required skills or to a scarce availability of jobs on the labour market. For this reason, we distinguished among these three age-classes only for not tertiary educated while for University graduates we used as regressors simply the age and squared age. Results highlight that for not tertiary educated being younger makes the STW transition process faster while for tertiary educated the opposite is true, probably because older is the individual and higher is the university specialization attained.

With reference to the macro-economic factors, we distinguished among the following groups of covariates: those related to the regional labour market, to the institutional factors, and to the education system.

Among the factors connected with the regional labour market, while higher levels of long-term unemployment increase the STW duration for all individuals, the GDP growth contributes to reduce this duration for tertiary educated while for the other group the higher diffusion of temporary contracts and a major propensity to innovation contribute to reduce the duration.

More numerous the institutional national characteristics influencing the STW transition. The following ones act only for those without a tertiary education: active labour market policies, some pillars of employment protection such as the protection of employment workers against dismissals and the regulation on temporary forms of employment. Instead, unemployment insurance acts increasing the duration of STW transition for all young individuals.

According to the education system, the investments in education and the time of teaching hours seem to have positive repercussions, reducing the period of STW transition, only for tertiary educated.

The last type of variables included in the study are dummy variables finalized to discriminate countries according to the type of transition regime. A significant coefficient for these variables means that important differences among these countries persist even after that we have controlled for all the covariates included in the model. We chose as reference category "Mediterranean countries".

Even after controlling for all these factors, Continental and Nordic countries highlight a gain in the reduction of transition duration, even if it results significant only for not tertiary educated. Indeed, for these countries, the best functioning and organisation of upper secondary school is the major factor which guarantees the best performances. This is due, in particular for Continental countries, to the dual system based on vocational education. Furthermore, both Nordic and Continental countries show a high overlap of school and work, with high share of students already involved in worker activities. Many of these work experiences during the studies continue also later. Conversely, the liberal regime of Ireland and the United Kingdom results best performer in relation to Mediterranean countries only with reference to tertiary education, probably because in these countries the University system is very well developed and very coveted, leading the whole EU university rankings.

Table 3. Determinants of school-to-work transition for 16–34-year-olds, in the years 2015, 2016 and 2017. Hazard ratios from Weibull distribution.

Transition duration	No more than high school	University
Personal characteristic		
Nationality (ref. own country)		
EU migrant	1.344	-
Extra-EU Migrant	0.679***	0.668***
Gender x civil status (ref. married women)		
Male x Single	3.959***	1.917***
Male x Married	5.134***	2.958***
Female x Single	3.114***	1.875***
Age class (ref. 25 and over)		
Teen (16-19 years)	2.002***	
Young (20-24 years)	1.975***	
Age		2.542***
Squared Age		0.981***
Education level (ref. < upper secondary ed.)		
Upper secondary education	1.331***	
Post secondary education	1.785***	
Delay in attaining education	0.575***	0.891
Family condition (poverty indicator)	0.095***	
Macro-economic factors		
Regional GDP growth	1.022	1.063***

Long-term unemployment	0.881***	0.905***
Regional Innovation Index	1.049*	
% of 25–30-year-old with temporary contract	1.011***	
Institutional characteristics		
Tax wedge	5.622***	5.809***
Minimum wage	1.359*	1.583***
Protection of permanent workers against dismissals (pill.1)	0.622**	~~1.302~~
Regulation on temporary forms of employment (pill. 4)	0.750***	
Unemployment insurance	0.661***	0.415***
Unemployment assistance		0.842
Active labour market policies (ALMPs)	0.469***	1.228
Eudcation system characteristics		
Share of expenses in education on GDP	1.081	
Share of tertiary education expenses on GDP		2.782***
Teaching time	1.000	1.003***
Deficit in education	1.000	1.000
Transition regime (ref. Mediterranean)		
Continental	3.205***	1.142
Nordic	1.465*	0.851
Liberal	0.397***	1.435*
Eastern	0.934	0.561***
Constant	1.131***	6.79e-08***
p	1.202	1.236
/lntheta	1.577***	1.300***
LR test of Theta chibar2	421.54***	370.35***
LR chi2	1,703.97***	1,025.91***
N	6,405	4,165
AIC	18,482.12	12,939.72
BIC	18,691.83	13,104.42

Source: Ad hoc elaborations on EU-SILC data.
*$p < .1$, **$p < .05$, ***$p < .01$

6. Conclusions

According to the results of analysis, the main considerations can be synthesised in the following points:

- Institutional factors significantly contribute to determine the duration of the STW transition. They are more the main factors on which policy makers can directly act in order to improve youth employability
- Labour market functioning differs a lot among countries and even within many of them. The long-term unemployment rate is the most important factor influencing the STW transition duration
- Education system characteristics are crucial in order to improve young people employability. An efficient education system, able to transfer the skills and competences required by the labour market helps to reduce the barriers in entering the labour market
- The transition regime, defined as the mixture of the education system characteristics, Institutions regulating it and the degree of overlap between work and education, demonstrates to affect the duration of STW transition also after that we controlled for all these factors included into the analysis. This means that, despite the observed factors contributing to identify the type of transition regime and the other factors included into the analysis, also the interactions among these different factors contribute to determine the characteristics of the STWT and its duration.

References

Esping-Andersen, G. (1990), The three worlds of welfare capitalism, Cambridge: Policy Press.

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

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

Lodovici R. and Semenza R. (eds.) (2012), Precarious work and high-skilled youth in Europe, FrancoAngeli, Milano.

Manfredi, T., Scarpetta, S. & Sonnet, A. (2010), Rising Youth Unemployment During the Crisis: How to Prevent Negative Long-Term Consequences on a Generation?, OECD Social, Employment and Migration Working Papers 106, OECD publications, Paris.

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

Ng T.W.H. and Feldman D.C. (2007), The school-to-work transition: A role identity perspective, Journal of Vocational Behavior, 71, 114-134.

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

Pastore, F. (2018), Why So Slow? The School-to-Work Transition in Italy. IZA working paper. Forthcoming in Studies in Higher Education.

Pavlova M.,Lee C. J. And Maclean R. (2017), Complexities of school to work transitions, Educational Research for Policy and Practice, 16(1), 1-17.

Pohl, A. & Walther, A. (2007). Activating the Disadvantaged: Variations in Addressing Youth Transitions across Europe. International Journal of Lifelong Education, 25(6): 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, n. 2582, January.

Winefield A.H. and Tiggemann M. (1990), Employment status and psychological well-being: A longitudinal study, Journal of Applied Psychology, 75, 455-459.