

## The quality of employment in the early labour market experience of young Europeans

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### Abstract

This paper presents a new approach to evaluating individuals' employment quality, considering the evolution of individuals' employment conditions over a period of time, instead of the quality of jobs held at a certain point in time. In particular, we present a new definition of employment quality, based on four dimensions: employment security, income security, economic success and the successful match between education and occupation. Using EU-SILC data, we analyse the extent to which the achievement of employment quality five years after leaving education varies according to gender, education, country groups and time periods. Our findings suggest that there is still a pressing need to enhance women's chances to remain continuously in employment and to move up in the labour income distribution. Loosening the rules on the use of temporary contracts actually generates more difficulties for women and low-educated individuals and it also appears to worsen youth employment prospects in general.

**Keywords:** Employment quality, Employment security, Income security, Young people, Employment protection legislation.

**JEL** classifications: J81, J69, J13

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## 1. Introduction

The objective of this paper is to present a new approach for the evaluation of the ‘quality’ of employment. The literature on job-quality and quality of employment is very large. The concepts are different according to whether one takes an objective or a subjective approach, and according to the different academic fields (Burchell et al. 2014, EC 2014a).<sup>1</sup> Although there is no consensus as to what exactly constitutes a ‘good job’, all studies that adopt an objective perspective on job-quality include an evaluation of earnings and (almost all of them) of job-security<sup>2</sup>. Earnings quality is generally captured by the level of earnings (both in absolute and relative terms), and job-security by the type of contract or the unemployment risk.

The empirical studies that measure the quality of employment focus on the features of the jobs held by workers at a specific point in time. But labour markets are increasingly characterized by workers frequently moving between jobs, with possible unemployment spells in-between. Therefore, if we are interested in evaluating workers’ well-being, we need to develop new concepts of employment quality that refer to individuals’ employment conditions over a period of time, instead of the quality of jobs held by workers at a certain point in time. In this paper, we present a new definition of (objective) employment quality, based on the evaluation of various dimensions of individuals’ labour market experience over a two-year period. In particular, we consider four dimensions of employment quality: employment security, income security, economic success and a successful match between education and occupation. We identify each of them using information over two subsequent years. The novelty of this approach is twofold. First, we evaluate the quality of individuals’ employment condition (over a period of time), and not the quality of the jobs they hold (at a point in time). Second, we adopt a dynamic perspective to assess employment quality, by considering the evolution over time of various dimensions.

We present an empirical application of this approach for the analysis of the labour market experience of young Europeans (aged 16-34), around five years after leaving full-time education. The study is carried out using EU-SILC longitudinal data over the period 2006-2012

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<sup>1</sup> See Burchell et al. (2014) for a review of the development of concepts related to the quality of employment. See EC (2014a, Annex 1, pp. 172-179) for a synthetic review of objective definitions of job-quality developed by various international organisations in recent years.

<sup>2</sup> Other dimensions considered in the literature include the working environment (nature and content of work performed, health and safety, working-time arrangements and workplace relationships), education and training, work-life balance and gender equality (Burchell et al., 2014; OECD, 2014). See Munoz de Bustillo et al. (2011) for a critical survey of job-quality indicators.

for 17 EU countries<sup>3</sup>. We examine how individual characteristics and labour market institutions at the national level (in particular, employment protection legislation [EPL] and expenditures for labour market policies) affect the probability of reaching a secure and/or successful employment condition. Since the group of young people (aged 16-34) unable to achieve a good-quality employment is quite heterogeneous, we use information on their monthly employment status to distinguish various subgroups.

Our results show that loosening the rules on the use of temporary contracts does not appear to be an effective policy tool to improve youth employment outcomes. In fact, it reduces the chances of achieving a sufficiently secure employment condition for all young people, besides generating more difficulties for women (and low-educated individuals). Second, both stricter rules for individual dismissals and higher ALMPs expenditures appear to have positive effects on employment status trajectories, but also some negative income effects for continuously employed individuals. Third, there is still a pressing need to enhance women's chances to remain continuously in employment and to move up in the labour income distribution. Indeed, around five years after having left education, young women are less likely than men to achieve employment security. But if they are able to follow a stable employment trajectory, they have more chances to be income-secure. On the contrary, young women have less chances to be successful, even when they manage to remain continuously employed.

The rest of the paper is structured as follows. In section 2 we review the relevant literature. Section 3 presents our definitions of the various dimensions considered in the evaluation of youth employment quality, the data used and some descriptive statistics. Section 4 presents the econometric model and discusses the main empirical findings. Section 5 concludes.

## **2. Literature review**

A large body of literature has explored the complex and multidimensional concept of job-quality from a variety of perspectives: workers' own evaluation of their jobs, intrinsic quality of jobs (i.e. objective characteristics), as well as country-level evaluation of the quality of employment.<sup>4</sup> Even when restricting the attention to objective (rather than subjective) job-

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<sup>3</sup> Austria (AT), Belgium (BE), the Check Republic (CZ), Denmark (DK), Estonia (EE), Greece (EL), Spain (ES), Finland (FI), France (FR), Hungary (HU), Italy (IT), the Netherlands (NL), Poland (PL), Portugal (PT), Sweden (SE), Slovenia (SI), Slovakia (SK).

<sup>4</sup> In recent years, also several international organisations have made efforts to assess and quantify job quality at the country level. Most noticeable efforts are: European Parliament (2009) with the European Job Quality Index, EC (2014a) with the EMCO indicators for job quality, Eurofound and the Quality of Work and Employment

quality, the definition and the aspects considered vary considerably across academic fields and studies. Nevertheless, there is some convergence on the features that are considered crucial for workers' well-being. In particular, they always include some indicators on the quality of earnings and job security.

To our knowledge, all these studies focus on the features of the job held at a specific point in time. No attempt has been made to investigate the quality of individuals' employment condition by a broader perspective, i.e. considering some features of their labour market experience over a certain period of time. We believe that this is crucial for the analysis of young people labour market experience, when the school-to-work transition period is over, and for the design of effective policy tools (i.e. able to help specific groups of individuals to overcome the difficulties they face in the labour market).

In this paper we take an objective perspective on the evaluation of young individuals' employment quality, considering the dimensions that have been shown to matter more for the well-being of workers: earnings quality and employment security. We also evaluate the coherence between individuals' education and type of occupation, because it has been shown to have an important effect of individuals' well-being. In the following subsections we review the relevant literature for the dimensions of employment quality considered in our study.

### *2.1 Employment security*

Employment security has been mainly analysed by authors concerned with the consequences of labour market flexibilisation. One stream of this literature examines the effects of the employment protection legislation (EPL) on indicators measuring the facility to enter or re-enter employment: transition to first job, exit rates from unemployment, hiring rates.<sup>5</sup> A second stream of literature analyses the use of temporary contracts (associated with lower job security), and the transition towards permanent contracts (with higher job security).<sup>6</sup> Unfortunately, these studies do not combine information on job security with information

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concept (2002; 2012), OECD (2014) and the Job Quality Framework, ILO (2012) with a broader approach comprised in the Decent Work Agenda. For a synthetic review of objective definitions of job quality developed by these various international organisations in recent years see EC (2014, Annex 1, pp. 172-179).

<sup>5</sup> Generally, results provide evidence of a negative relationship between EPL and the inflow rate into unemployment, the rate of exit from unemployment and the hiring rate (more difficulties to find new jobs), the speed of entry or re-entry in employment (Gomez-Salvador et al., 2004; OECD, 2004; Scherer, 2005; Wolbers, 2007; Kugler and Pica, 2008; Mills and Prag, 2014).

<sup>6</sup> These studies show that in some countries – such as Germany, Austria, UK, Sweden and the Netherlands – temporary contracts act as stepping stones to more stable and better paid jobs (EC, 2010: 140-142; de Graaf-Zijl et al., 2011), but in other countries – such as Spain, Italy, Greece but also France and Poland – they act as 'traps' (D'Addio and Rosholm, 2005; Berloffo et al., 2014; Givord and Wilner, 2015).

about the duration of individual unemployment spells between different jobs, which is essential for the evaluation of the actual degree of individuals' employment security. Indeed, the idea of 'employment security' at the base of the flexicurity approach is that individuals should be able to retain employment over time, although not necessarily in the same job with the same employer (Wilthagen and Tros, 2004; Muffels and Luijkx, 2008). As underlined in Berloff et al. (2016), we should go beyond the simple idea of job security associated with the type of contract, and use a definition of individual employment security based on the actual duration of employment and unemployment spells. In particular, we consider (monthly) employment status trajectories, and define these trajectories as sufficiently "secure" if they encompass long-enough employment spells and short-enough unemployment spells. This approach has also the advantage to allow the comparison across countries with very different labour market institutions (ranging from the case of no temporary contracts but employment at-will to the case of strict rules on dismissals and high flexibility in the use of temporary contracts).

## *2.2 Earnings quality: income security and economic success*

In the assessment of job quality, OECD (2014) evaluates earnings quality at the country level, according to two dimensions: the level of average earnings, which provides a key benchmark for assessing their contribution to material living standards; and their distribution across the workforce, because the way earnings are distributed also matters for well-being. We consider these two dimensions from an individual perspective, and evaluate whether individual labour income is high enough to ensure decent material living standards (which we label "income security"), and whether it is relatively higher than what is earned by other individuals with a similar educational level (which we label "economic success").

Drawing on the literature, we identify two components of (labour) income security: one related to the issue of in-work poverty, the other to the occurrence of (large) income declines.

"In-work poverty" is defined as a condition in which equivalised household disposable income is not sufficient to avoid poverty, although having worked for a sufficiently long number of months. Empirical research shows that working poverty has become a serious socio-economic problem at European level (Peña-Casas and Latta, 2004; Andre and Lohmann, 2008, Fraser et al., 2011). Most national studies focus on the relation between in-work poverty and individual characteristics (gender, age and education levels), job characteristics (temporary, part-time and self-employment) and household context (composition, number of earners and work

intensity).<sup>7</sup> From this literature, we borrow the idea of considering the risk of poverty as a threshold to identify “decent material living standards” for employed individuals. Since we want to assess individuals’ employment quality (not individuals’ overall economic well-being) we consider only labour incomes (excluding other types of economic resources that individuals can rely on). Therefore, the first component of our definition of (labour) income security is that young people's annual earnings should be high enough as to avoid the risk of poverty.

The importance of considering income declines has been highlighted by the literature dealing with the issue of economic security at the micro level. Studies in this field usually focus on household income, and evaluate either its volatility (Rohde, Tang and Rao, 2014) or the frequency of large net income declines (see the “Economic Security Index” proposed by Hacker et al., 2014).<sup>8</sup> The rationale for considering income reductions is loss aversion. Several papers have shown the importance of loss aversion for financial markets (see Barberis, 2013 for a survey). Some authors have also found support for loss aversion in the labour market (Crawford and Meng, 2011; Camerer et al., 1997). Moreover, there is evidence that pay reductions reduce workers’ well-being through increased overall stress (Russel and McGinnity, 2014). Based on these studies, we assume that labour income security depends not only on earnings level, but also on their evolution over time. In particular, earnings should not decline over time especially when young people are at the beginning of their working life and need to save for future needs. Therefore, the second component of our definition of income security requires that annual earnings do not fall (significantly) over time. More details on the definition will be provided in the next section.

The OECD (2014) considers also the distribution of earnings across the workforce, as a key dimension of earnings quality. From an individual point of view, this corresponds to evaluating the relative performance of individuals compared to their peers. Indeed, several studies show that subjective well-being is strongly affected by relative income, defined in a range of different ways (see the surveys of Clark, Frijters, and Shields, 2008, and Dolan, Peasgood and White, 2008). Earning more than other individuals with similar educational attainments influences individuals’ perception of being successful in the labour market, and increases their subjective well-being more than their absolute level of income. Therefore, we consider the

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<sup>7</sup> For a review of the literature, see Crettaz (2011), Eurofound (2010), Frazer and Marlier (2010).

<sup>8</sup> Other studies focus on wealth or on some combination of income and wealth (Lusardi et al., 2011, Bossert and D'Ambrosio, 2013). For example, D'Ambrosio and Rohde (2014) propose a measure of economic insecurity, which is a weighted sum of current wealth and past changes in wealth. In their measure, past declines in wealth are more heavily weighted than past increases and events farther in the past get less weight than more recent events.

relative position of individuals within the income distribution as an important dimension of employment quality. We label this dimension as “economic success”, and we define it according to whether young people’s earnings are higher than the country-year-education specific median earnings. Again, we consider whether this condition persists over time.

### *2.3 Educational-occupational match*

The educational-occupational match is not usually considered in the literature on job quality. The phenomenon is generally explored either as a cause of youth unemployment or for its consequence on labour income. Skill mismatch between workers’ competences and what is required by their job is a widespread and increasing phenomenon in Europe (EC, 2012; ECB, 2014; ILO, 2014). Among the many types of skill mismatch<sup>9</sup>, the concept of over-education<sup>10</sup> has received most attention in literature. It should be pointed out that educational qualifications are an imperfect proxy of the skills and competences possessed by individuals, as they fail to account for the dynamic process of skill gains/losses related to work experience, as well as differences across education and training systems (EC, 2012: 362).<sup>11</sup> However, measuring skill mismatch between workers and jobs is not easy, for lack of appropriate data.<sup>12</sup> As a result, most studies use educational qualifications as proxies for competences.

The literature on over-education shows that over-qualified workers earn less than their equally-qualified and well-matched counterparts (but more than appropriately-qualified workers doing the same job); while under-qualified workers earn more than their equally-qualified and well-matched counterparts (but less than appropriately-qualified workers doing the same job) (Quintini, 2011: p. 17). Moreover, a large stream of literature shows that over-educated individuals are less satisfied than adequately educated workers with a similar educational background. Verhaest and Omey (2009) also find that the utility consequences of over-education are large and cannot be compensated by a reasonable wage increase at the start of the

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<sup>9</sup> Qualitative mismatch takes many different forms: vertical qualification mismatch, horizontal qualification mismatch, skill mismatch and skill obsolescence (see EC, 2012, tab. 1, p. 358; Cedefop, 2010).

<sup>10</sup> This concept was first introduced by Richard Freeman (1976) in his influential book based on US experience.

<sup>11</sup> “Though much of the early literature focused on education mismatch, recent evidence has highlighted that it can be weakly correlated with skill mismatch. Educational credentials cannot provide a full picture of the quality of individuals’ human capital, in particular their skill gain and skill loss over their careers.” (EC 2012: p. 358).

<sup>12</sup> Three alternative methods of measuring vertical mismatch have been used in the literature: the job evaluation method based on information included in formal job descriptions, the worker self-assessment method (that relies on the subjective response of workers about educational requirement of their job), and the empirical method (that calculates vertical mismatch from the distribution of schooling levels across a given occupation). Each method has its own strengths and weaknesses. The different approaches used to estimating the incidence of over-qualification tend to yield broadly consistent conclusions (EC 2012: p. 361; Quintini (2011: p. 14).

first employment. Given the increasing relevance of skill mismatch in EU countries, especially for young people, we include it among the dimensions of employment quality.

### **3. Data, definitions and descriptive analysis**

Our empirical analysis is focused on young people (aged 16-34) in 17 EU countries<sup>13</sup>. We use the 2009 to 2012 longitudinal waves of EU-SILC, which cover the years from 2006 to 2012. The data allows the tracking of individuals for a maximum of four interviews, but we restrict the analysis to individuals with at least three consecutive interviews in order to increase the sample size<sup>14</sup>. We further restrict the sample to those individuals who left education three to five years before the first interview. In selecting the sample, we had to resort to data approximation/imputation as we do not have information on the year when the highest level of education was attained. Therefore, we used the official age at which each ISCED level is supposed to be completed.<sup>15</sup>

#### *3.1 Definitions*

All employment quality dimensions are defined over a two-year period. The reason for this is that the information used to measure employment security, income security and economic success refers to the year preceding the EU-SILC survey, while the information used to measure the educational-occupational match refer to the year of the survey. Therefore, by selecting individuals with three interviews, we have only a two-year overlapping period, which allows us to measure the four dimensions of employment quality over the same time span.

As already mentioned, we define ‘employment quality’ according to four dimensions that we consider essential for a successful inclusion of young people in the labour market: employment security, income security, economic success and a successful match between education and occupation. The precise definition of these four dimensions is the following:

- 1) *employment security*: if a young person experienced employment spells lasting (each) at least six months and non-employment spells lasting (each) at most three months over the 24 months of observation;<sup>16</sup>

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<sup>13</sup> See footnote 3 for the list of countries considered in the analysis.

<sup>14</sup> For individuals with four interviews, we keep the first three interviews, unless the first one is not complete. In this case we use the last three interviews.

<sup>15</sup> This official age is taken from European Commission (2014b): The Structure of the European Education Systems 2014/15: Schematic Diagrams.

<sup>16</sup> Berloff et al. (2016) present a detailed discussion of the difference between this definition of employment security and a definition of job-security based on the type of contract or on the permanence in the same job over time. The contract-based definition considers as job-secure individuals with a permanent contract and insecure



- 2) *income security*: if the annual labour income<sup>17</sup> in both years of observation are above the at-risk-of-poverty threshold<sup>18</sup>, and are not decreasing over time;
- 3) *economic success*: if monthly labour income<sup>19</sup> in both years of observation are larger than the country-year-education specific median earnings, and are not decreasing over time;
- 4) *educational-occupational success*: if, in the first two interviews, a young person is not over-educated as defined by ILO (2014)<sup>20</sup>, and does not move from an occupation category to an inferior one.

In the empirical analysis we further group these dimensions into two broader ones: *security*, which considers the joint occurrence of employment and income security, and *success*, which captures both economic and educational-occupational success. Few authors have analysed employment and income security jointly (Van Oorschot and Chung, 2015; Hallerod et al., 2015).<sup>21</sup> In order to facilitate the interpretation of our results, we provide first an analysis of employment security, and then an overall assessment of employment and income security taken together, because we believe that this permits a more nuanced assessment of youth labour market performance as well as the complex role of policies and institutions.

Identifying those young people who experience security and/or success is not enough from a policy point of view, because the group of those who did not reach these outcomes is quite heterogeneous. In particular, among this group it is important to distinguish individuals with a different degree of labour market attachment. In order to do so, we exploit the monthly information about individual employment status, and distinguish various subgroups according

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those with a temporary contract. The definition of job-security based on the permanence in the job over time considers as job-secure individuals employed for two consecutive years with no change in the job or a voluntary change to take up a better job. Results highlights that around 40% of the persons considered job-insecure are in fact employment-secure, i.e. they were able to re-enter rapidly into the labour market.

<sup>17</sup> Labour income includes annual earnings for employees, profits and losses for self-employed workers.

<sup>18</sup> This threshold corresponds to 60% of the national median equivalised disposable income after social transfers.

<sup>19</sup> Monthly earnings are computed by dividing the declared annual labour income by the number of months worked during the income reference period.

<sup>20</sup> Over-education or under-education means that workers have more or less education than required by their job. ILO's measure of education-occupation mismatch is based on a correspondence between the ISCED and ISCO classifications. In particular, high-skilled non-manual occupations (ISCO 1, 2 and 3) require tertiary education (ISCED 5 and 6); low-skilled non-manual (ISCO 4 and 5) and skilled manual occupations (ISCO 6, 7 and 8) require secondary education (ISCED 3 and 4); unskilled occupations (ISCO 9) do not require any education (ISCED 0, 1 and 2). Workers in a particular occupational group who have the assigned level of education are considered well matched. Those who have a higher (lower) level of education are considered overeducated (undereducated).

<sup>21</sup> Hallerod et al. (2015) investigates whether the “working poor” it is mainly a low-wage problem or an unemployment problem and find that in-work poverty in Europe is mainly an unemployment problem among the self-employed and for the ones moving in and out from employment. Van Oorschot and Chung (2015) look at perceived insecurity, and shows that perceived employment insecurity and income insecurity only partly overlap: in the ESS dataset the correlation between feelings of employment insecurity and feelings of income insecurity is 0.42 at the individual level. They define as “dual insecure” workers experience employment and income insecurity at the same time.

to the characteristics of their employment status trajectories (ESTs). Sequence analysis generally adopts the optimal matching (OM) technique to group individual sequences (Scherer, 2005; Brzinsky-Fay, 2007; Quintini and Manfredi, 2009; Dorsett and Lucchino, 2013). However, the use of OM to study life-course events is not without controversy.<sup>22</sup> Despite the various extensions and improvements developed during the last decade, the classification of trajectories or sequences based on OM remains *data-driven*.

In this paper, we adopt an alternative methodology that is *outcome-driven* (Berloff et al, 2015). This methodology is based on the identification, by the researcher, of some specific features that individual sequences must have in order to belong to the same group. These features vary according to the research aim. Since the aim of our clustering is to distinguish sub-groups of insecure/unsuccessful individuals with a similar degree of labour market attachment, we group individual trajectories according to the prevailing status and the frequency of status change. Indeed, individuals with frequent status changes are in a different position and require different policies compared to individuals who remain for long periods in unemployment or inactivity.

Since our sample includes young people with three complete interviews, we exploit all possible information about individual ESTs, by considering individual employment sequences over the entire period of 36 months. According to the prevailing status and the frequency of status changes, we identify the following six EST-types (see fig. 1):

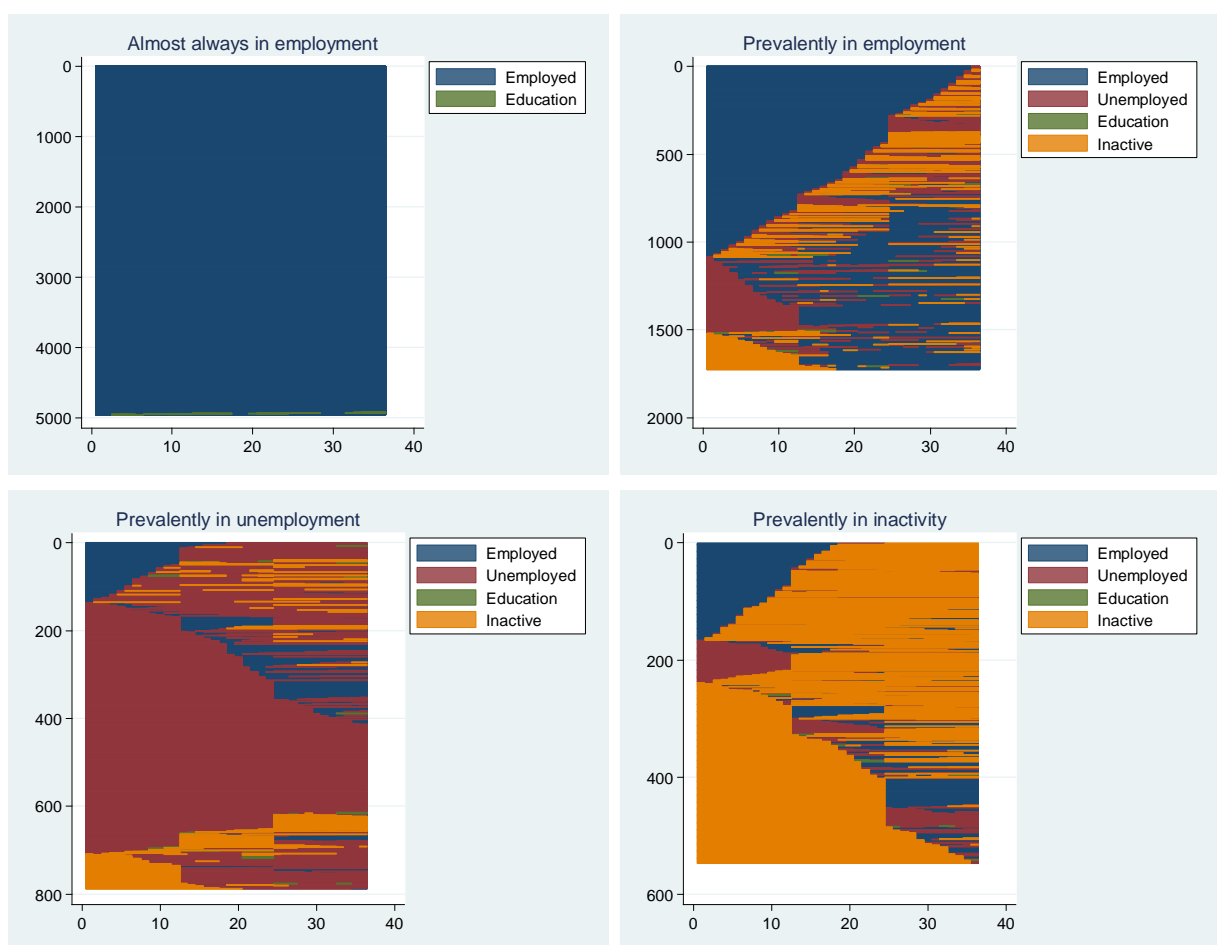
- 1) *almost always in employment*: individuals who were always employed during the 36 months, or had only a short spell of education (i.e. lasting less than six consecutive months);
- 2) *prevalently in employment*: individuals with a long employment spell (i.e. lasting more than 12 consecutive months), a low number of changes from employment to non-employment (and vice-versa; three at most) and, overall, more months in employment than in unemployment and inactivity;
- 3) *prevalently in unemployment*: individuals with a long unemployment spell (i.e. lasting more than 12 consecutive months), a low number of changes from employment to other statuses (and vice-versa; three at most), more months, overall, in unemployment/inactivity than in employment, and relatively more months in unemployment than in inactivity;

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<sup>22</sup> See Aisenbray and Fasang (2010) for a discussion of criticisms of traditional OM. Two recurrent criticisms concern the lack of a theoretical base to convert sequences into a model (Levine, 2000) and the failure to account for the direction of time and the order of states across sequences (Wu, 2000). Given these critiques, the research on OM has moved forward towards a fine tuning of the methodology. See Cornwell (2015) for a review of the OM technique and an update on the latest methodological improvements.

- 4) *prevalently in inactivity*: individuals with a long inactivity spell (i.e. lasting more than 12 consecutive months), a low number of changes from employment to other statuses (and vice-versa; three at most), more months, overall, in unemployment/inactivity than in employment, and relatively more months in inactivity than in unemployment;<sup>23</sup>
- 5) *in&out employment*: individuals with at least four changes from employment to non-employment (and vice-versa);
- 6) *return into education*: individuals who returned in education for at least six months during the observed period.

**Figure 1: Individual Employment Status Trajectories (ESTs) by trajectory type. Young people (aged 16-34) around five years after leaving education in 17 European countries**



<sup>23</sup> We exclude those individuals who were inactive during the whole period of observation (less than 3% of our sample, mainly women).



Source: Author's computation based on EU-SILC longitudinal data (2006-2012).

### 3.2 Descriptive analysis

Because of data limitations, we were able to consider 17 European countries, representative of four country groups: Nordic (DK, FI, SE), Continental (AT, BE, FR, NL), Southern (EL, ES, IT, PT) and Central-Eastern (CZ, EE, HU, PL, SI, SK).<sup>24</sup> Some descriptive statistics on the various dimensions of employment quality and on individual trajectories by gender, education, country group and period of time are presented in Table 1 and Table 2.

About 67% of young individuals in our sample experience employment security, but only 37% enjoy income security (Table 1). Overall, about 35% of young individuals have a 'secure employment condition' (combining employment security with income security). More than a half of our sample enjoys a good match between their educational attainments and their type of occupation, but only 18% are economically successful. Overall, only 14% of young people are successful in both dimensions of success.

<sup>24</sup> IE and UK are excluded because the definition of the income reference period is different from that of the other countries, and income is an important dimension of our subsequent analysis. BG, CY, LT, LV, MT, RO are excluded because the policy variables that we use in the econometric analysis are not available for them. IE, IS, LU and NO are excluded because of the small sample size (less than 100 observations).

**Table 1. Descriptive statistics of employment quality for young people (aged 16-34) around 5 years after leaving education in 17 European countries (shares)**

	SECURE EMPLOYMENT CONDITION			SUCCESSFUL EMPLOYMENT CONDITION		
	Employment Security	Income security	Employment and income security	Economic success	Education-Occupation success	Economic and education-occupation success
<b>All sample</b>	0.67	0.37	<b>0.35</b>	0.18	0.53	<b>0.14</b>
<b>Gender</b>						
Male	0.72	0.41	<b>0.39</b>	0.24	0.57	<b>0.18</b>
Female	0.62	0.33	<b>0.31</b>	0.13	0.49	<b>0.10</b>
<b>Education</b>						
Low	0.40	0.16	<b>0.14</b>	0.12	0.36	<b>0.09</b>
Medium	0.65	0.36	<b>0.34</b>	0.18	0.55	<b>0.14</b>
High	0.78	0.44	<b>0.42</b>	0.21	0.57	<b>0.15</b>
<b>Country group</b>						
Nordic	0.69	0.39	<b>0.35</b>	0.19	0.60	<b>0.15</b>
Continental	0.74	0.40	<b>0.38</b>	0.21	0.56	<b>0.15</b>
Southern	0.58	0.31	<b>0.29</b>	0.16	0.44	<b>0.12</b>
Eastern	0.69	0.39	<b>0.38</b>	0.19	0.57	<b>0.15</b>
<b>Observation period</b>						
2006-2007	0.69	0.44	<b>0.41</b>	0.21	0.56	<b>0.16</b>
2010-2011	0.66	0.31	<b>0.30</b>	0.16	0.49	<b>0.12</b>

Notes: Education: Low: lower secondary education; Medium: upper secondary education; High: tertiary education. Country groups: Nordic: DK, FI, SE; Continental: AT, BE, FR, NL; Southern: EL, ES, IT, PT; Eastern: CZ, EE, HU, PL, SI, SK.

Source: Authors' own calculations based on EU-SILC longitudinal data (2006-2012).

There are noticeable differences in these attainments by gender, education, country group and period of time.

Young women appear disadvantaged in all dimensions. Only 31% of them enjoy overall security (vs. 39% of young men), and only 10% (vs. 18%) are economically and occupationally successful. These results clearly reflect the issues of occupational segregation and wage penalty for women, already remarkable at the early stage of their working life. It is well known in the literature that, *coeteris paribus*, women earn less than their male colleagues and are segregated into low paid sectors and less valued occupations (Matteazzi, Pailhé and Solaz, 2013).

It is worth noting that the difference in the shares of employment-secure and income-secure individuals is similar across gender, education, country group and period of time. This suggests that employment security is far from being a sufficient condition for income security for young people in Europe.

Education plays a crucial role in ensuring a 'secure employment condition': almost half of university graduates experience security, while only 14% of those with lower secondary education. Differences are particularly large for income security: the share of income-secure

university graduates is about three times that of low-educated young people (44% vs. 16%), while the share of employment-secure university graduates is ‘only’ twice as large (78% vs. 40%). It is worth noting that the marginal effects of education are different. Tertiary education is somewhat less important than secondary education for both employment and income security. The odds of being employment-secure are about 60% higher for high-school graduates compared to low-educated individuals, while they are only 20% higher for university graduates compared to high-school graduates. The odds of being income-secure are 125% higher for high-school graduates compared to low-educated individuals, and only 22% higher for university graduates compared to high-school graduates.

Since economic success is defined with respect to the education-specific earnings distribution, differences between university and high-school graduates disappear when we look at the dimension of economic success. The disadvantage of low-educated young people is mainly related to a higher probability of having no income and/or of experiencing decreasing income over time. No relevant differences emerge between high-school and university graduates also when we consider a good-match between education and occupation. However, the difference between this share and the share of employment-secure individuals is larger for university graduates than for high-school graduates, suggesting that over-education matters more for highly educated young people. Since low-educated individuals cannot be over-qualified, the share of those experiencing an educational-occupational success is very similar to the share of employment-secure individuals.

Differences across country groups are larger for security than for success. Southern countries stand out for the lowest share of young people enjoying security, and they also record the lowest shares of young people in terms of both successful economic condition and a good match between their education level and type of occupation.

Finally, the impact of the economic crisis results in an overall reduction in the share of young people enjoying a secure employment condition: 30% in 2010-2011 compared with 41% in 2006-2007, driven more by the income security dimension. It is interesting to note that, although we define economic success using year-specific monthly earnings, there is a modest reduction over time in the share of young people experiencing economic success. Since our definition of the latter requires also that monthly earnings are non-decreasing over the two-year observational period, this result suggests that, during the crisis, it has become more likely for youth to experience a reduction in their monthly earnings over time. A similar modest

reduction can be observed also in the share of individuals who experience a good match between their educational level and their type occupation, suggesting increasing difficulties not only in finding a job, but also in finding an adequate occupation for the educational level attained.

Table 2 shows the distribution of the six EST-types (around five years after having left full-time education). About 56% of young people are almost always in employment, and another 19% is prevalently in employment. Roughly 15% of young individuals are at the margin of the labour market, either prevalently in unemployment (9%) or prevalently in inactivity (6%). While 5% of people in our sample move often in and out from employment, another 5% return into education.

Again, females and less educated young people appear more disadvantaged. Compared to men, women are much less likely to be always in employment (50% vs. 61%), and this is reflected in a slightly higher likelihood of being prevalently in employment (i.e. of experiencing some unemployment spells; 21% vs. 18%) and a much higher likelihood of being prevalently in inactivity (10% vs. 2%). No gender differences emerge for the other EST-types.

University and high-school graduates are much more likely to be always in employment than individuals with lower secondary education (68% and 52%, respectively, vs. 29%), and much less likely to be prevalently in unemployment (4% and 10% vs. 22%), or in&out (4% and 6% vs. 7%). Overall, about 85% of university graduates are prevalently or continuously employed around five years after having left education. This percentage reduces to 72% for high-school graduates and to only 51% for low-educated individuals. It is interesting to note, however, that about 14% of young with a low educational level choose to return to education.

Once more, the Southern country group stands out for the difficulties that young people face in the labour market: only 65% are almost always or prevalently employed against 77% or more in the other country groups. Southern Europe also exhibits the highest share of young individuals who are prevalently unemployed. No important differences are observed in the distribution of young people by EST-types before and during the crisis.

**Table 2. Descriptive statistics on EST-types for young people (aged 16-34) around 5 years after leaving education in 17 European countries (shares)**

	Almost always in employment	Prevalently in employment	Prevalently in unemployment	Prevalently in inactivity	In&out	Return to education
<b>All sample</b>	0.56	0.19	0.09	0.06	0.05	0.05
<b>Gender</b>						
Male	0.61	0.18	0.09	0.02	0.05	0.05
Female	0.50	0.21	0.09	0.10	0.05	0.05
<b>Education</b>						
Low	0.29	0.22	0.22	0.07	0.07	0.14
Medium	0.52	0.20	0.10	0.07	0.06	0.05
High	0.68	0.17	0.04	0.04	0.04	0.03
<b>Country group</b>						
Nordic	0.58	0.19	0.03	0.05	0.09	0.06
Continental	0.62	0.18	0.05	0.02	0.06	0.06
Southern	0.44	0.21	0.15	0.04	0.06	0.08
Eastern	0.59	0.19	0.08	0.09	0.04	0.02
<b>ESTs observed in</b>						
2005-2007	0.56	0.18	0.10	0.05	0.05	0.05
2009-2011	0.54	0.19	0.10	0.05	0.06	0.06

Notes: see Table 1.

Source: Authors' own calculations based on EU-SILC panel data (2006-2012).

In the last part of the analysis, we combine EST-types with the security and successful dimensions of employment quality. Indeed, we expect that the insecure and unsuccessful groups are heterogeneous, and the analysis of their trajectories should allow us to capture part of this heterogeneity. Thus, Table 3 presents some descriptive statistics for the distribution of the different trajectory types among individuals with a secure/insecure, successful/unsuccessful employment condition.

It should be noted, within the insecure group, the high percentage of young individuals who are almost always employed (40%). This is mainly due to the income security dimension: although being always in employment, these young people do not earn enough (or in a sufficiently stable way) to be out of the risk of poverty. By contrast, about 15% of young people enjoying security are not always employed. The majority of them is prevalently employed, but there is also a small group who manage to achieve an income-secure condition although being in&out from employment. They may be seasonal workers or people whose type of job comprises regular short spells of unemployment. Similar considerations apply for the success dimension.



**Table 1: Distribution of EST-types according to the overall security and success dimensions of employment quality for young people (aged 16-34) in 17 European countries\***

	Overall security		Overall success	
	Insecure	Secure	Unsuccessful	Successful
<b>Trajectories (ESTs):</b>				
Almost always in employment	0.40	0.85	0.50	0.87
Prevalently in employment	0.22	0.15	0.20	0.12
Prevalently in unemployment	0.14	0.00	0.11	0.00
Prevalently in inactivity	0.09	0.00	0.07	0.00
In&Out employment	0.08	0.01	0.06	0.01
Return into education	0.08	0.00	0.06	0.00

Notes. \*: “Overall security” is assessed with respect to both employment and income security; “overall success” is assessed with respect to both economic success and a successful match between education and occupation. See Section 3.1 for details.

Source: Authors' calculations based on EU-SILC panel data (2006-2012).

#### 4. Econometric analysis

The objective of the econometric analysis is twofold: first, to examine how individual characteristics and labour market institutions (at the country level) affect the probability of having a secure or successful employment condition; second, to check whether the heterogeneity among insecure and unsuccessful young individuals is also partly explained by these variables. Therefore, we estimate the following models:

- 1) three probit models for employment security, overall security and overall success;
- 2) three multinomial logit models for EST-types interacted with employment security, overall security and overall success.

Explanatory variables include individual characteristics such as sex, educational level, age, potential experience (measured as the difference between age and the age at which the individual began his/her first regular job), household and living arrangements. To control for business cycle fluctuations at the country level, we include the real GDP growth rate and we also control for country and year fixed effects.<sup>25</sup> To account for the role of labour market institutions, we consider the expenditures on active labour market policies (ALMPs)<sup>26</sup> and the strictness of the employment protection legislation (EPL). For ALMP, we compute country and year specific total expenditures per unemployed as a share of per-capita GDP. For EPL, we

<sup>25</sup>All individual characteristics and the GDP growth rate refer to the first year of the two-year period used to measure security and success. The EPL indicators and ALMPs expenditures refer to the year before this two-year period.

<sup>26</sup> Following Eurostat classification, ALMPs include training, job rotation and job sharing, employment incentives, supported employment and rehabilitation, direct job creation, start-up incentives (categories 2-7).

consider separately the two components relating to permanent and temporary contracts (EPL-P and EPL-T, respectively).<sup>27</sup> Although many studies analyse the impact of the overall EPL index, the literature highlights that changes in the regulation of permanent contracts may have quite different effects with respect to changes in the regulation of temporary contracts.

#### *4.1 Predicted probabilities and marginal effects for employment quality: employment security, security and success*

Table 4 shows that young women have less chances than young men to achieve employment security and success, but no significant gender differences are estimated for the overall security. Since overall security is mainly driven by income security, this result suggests that, although women are more likely to experience fragmented employment pathways, when they are able to enter a sufficiently continuous employment trajectory they have more chances than men to achieve income security. The multinomial logit model (presented in Section 4.2) confirms this intuition. Living in a couple substantially reduces women's probability of being both secure and successful; in contrast, it increases men's probability of having a secure employment pathway.

Education plays a crucial role for the achievement of both employment and overall security. Obtaining a high-school diploma raises the probability of achieving security by 34 percentage points (pp) for employment security and by 50pp for overall security. Obtaining a university degree further increases these probabilities by 37pp and 9pp respectively. The different effects on employment and overall security are due to the impact on income security. Getting a high-school diploma increases the chances of being employment-secure, but it increases even more the chances of being income-secure. On the contrary, getting a university degree has large additional effects on achieving employment security, but much lower marginal effects on income security. Interestingly, potential work experience raises both employment and overall security, but it has no effects on the success dimension.

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<sup>27</sup> Both EPL-P and EPL-T range from 0 to 6, and are weighted averages of sub-indicators of employment regulation. The EPL-P indicator incorporates the following sub-indicators: i) Procedural inconveniences (notification procedures and delays involved before notice can start); ii) Notice periods and severance pay for no-fault individual dismissal (length of the notice period of dismissal and the amount of severance pay); iii) Difficulty of dismissal (definition of justified or unfair dismissal, length of trial period, compensation following unfair dismissal, and possibility of reinstatement following unfair dismissal). EPL-T incorporates the following aspects: i) Fixed-term contracts (valid cases for use of fixed-term contracts, maximum number of successive fixed-term contracts and maximum cumulated duration of successive fixed-term contracts); ii) Temporary work agency employment (TWA) (types of work for which TWA employment is legal, restrictions on the number of renewals of TWA assignment and maximum cumulated duration of TWA assignments). Detailed methodology is discussed in OECD (2013).

**Table 4. Predicted probabilities and marginal effects of the probability to be Employment Secure, Overall secure and Overall successful**

Predicted probabilities	Employment security			Overall security			Overall success		
	Pr	St.Err.		Pr	St.Err.		Pr	St.Err.	
	0.69	***	0.01	0.33	***	0.01	0.13	***	0.00
Marginal effects:	dy/dx	St.Err.		dy/dx	St.Err.		dy/dx	St.Err.	
Female	-0.31	***	0.06	0.02		0.06	-0.12	***	0.04
Female in couple	-0.19	***	0.02	-0.16	***	0.02	-0.09	***	0.01
Male in couple	0.06	**	0.03	0.00		0.02	-0.00		0.01
Living in the family of origin	-0.03	*	0.02	-0.03	*	0.02	-0.07	***	0.01
Medium education	0.34	***	0.11	0.50	***	0.13	0.13		0.09
High education	0.71	***	0.12	0.59	***	0.14	0.10		0.09
Age	0.01	*	0.01	0.01	**	0.01	0.01	***	0.00
Potential experience	0.02	***	0.00	0.01	***	0.00	0.00		0.00
EPL-T	0.13	***	0.05	0.09	*	0.05	0.03		0.04
EPL-T * medium education	-0.06	**	0.03	-0.10	***	0.03	-0.01		0.02
EPL-T * high education	-0.06	**	0.03	-0.07	**	0.03	-0.01		0.02
EPL-T * female	0.08	***	0.01	0.04	***	0.01	0.04	***	0.01
EPL-P	-0.01		0.16	-0.11		0.15	-0.25	**	0.10
EPL-P * medium education	0.03		0.03	-0.07	**	0.03	-0.02		0.02
EPL-P * high education	-0.07	**	0.03	-0.09	***	0.03	-0.02		0.02
EPL-P * female	0.01		0.02	-0.06	***	0.02	-0.00		0.01
ALMPs	0.95	***	0.33	-0.43		0.37	0.27		0.24
ALMPs * medium education	-1.16	***	0.24	0.06		0.29	-0.46	**	0.18
ALMPs * high education	-1.22	***	0.25	0.06		0.29	-0.41	**	0.19
ALMPs * female	0.31	**	0.13	0.03		0.12	0.03		0.08
N. observations	8159			8159			8159		

Notes: See notes to Table 3 for the definitions of “Overall security” and “Overall success”. Low education (reference category) includes ISCED levels from 0 to 2 (i.e. lower secondary education at most); medium education ISCED levels 3 and 4 (upper secondary education at most); high education ISCED levels 5 and 6 (i.e. tertiary education). EPL-T and EPL-P are the OECD indicators for temporary and permanent contracts. ALMPs refer to the total expenditure per unemployed as a share of per-capita GDP. Other variables included in the regressions are: GDP growth rate, and country and year fixed effects. \*\*\*p<0.01, \*\*p<0.05, \*p<0.10.

Regarding the mix of EPL and ALMPs, some interesting results emerge. First, these variables are more related to the security dimension of employment quality, rather than to that of success, which should depend more on the individuals’ observed and unobserved characteristics. Second, their effects differ by gender and educational level.

A more stringent regulation on fixed-term contracts (i.e. a higher EPL-T index) raises youth employment and overall security, whatever the educational level. But the effect is larger for low-educated individuals. Moreover, increasing the strictness of the regulation on fixed-term contracts raises substantially women's chances of achieving better results in both dimensions of security and success. This evidence may be related to the labour market segmentation by

employment contracts, i.e. to the fact that women and low-educated individuals are overrepresented in fixed-term contracts (Petrongolo 2004; Muffels 2008).

Stricter regulations on permanent contracts (i.e. a higher EPL-P index) have differentiated effects across educational levels. High-educated individuals have a significantly lower probability of achieving both employment and overall security with more stringent rules for dismissals. A higher EPL-P also reduces females' probability of achieving overall security but, since there is no effect on employment security, this is entirely due to its effects on income security.

Finally, ALMP expenditures have differentiated effects by education and gender. Higher expenditures on ALMPs are associated with a higher probability of being employment-secure and a lower probability of being overall-secure for low-educated individuals, but with a lower probability of being successful for high-educated people. Higher expenditures on ALMPs also raise females' probability of achieving employment security.

#### *4.2 Predicted probabilities and marginal effects for ESTs of the insecure and unsuccessful*

The effects of individual and labour market characteristics on EST-types of insecure/unsuccessful individuals are presented in Table 5 and Table 6, where we report predicted probabilities and marginal effects for selected variables from the estimation of three multinomial logit models.

Table 5 shows our results for employment security and different pathways of employment-insecure individuals. In line with the descriptive statistics, women (compared to men) have a significant lower probability of achieving employment security and a higher probability of experiencing inactivity and returning to education. The employment condition of women in a couple is even worse. Besides having much lower chances of being employment-secure, they are also more likely to have a fragmented career pathway (i.e. prevalently employed and insecure) or to be out of paid employment (i.e. prevalently unemployed and inactive). In contrast, men in a couple have a higher probability of being employment-secure. Educational attainments are important: higher levels of education are associated with a higher probability of being employment-secure and a lower probability of being in the other trajectory-types (except for return to education). Potential work experience also raises the probability of achieving employment security, by reducing the risk of experiencing unemployment and the probability of returning to education.

A more stringent regulation on the use of fixed-term contracts (i.e. a higher EPL-T index) increases youth probability of being employment-secure and reduces the probability of experiencing either several short employment spells or long unemployment spells in-between (i.e. being prevalently employed but employment-insecure). The effects associated with EPL-T are larger for women and low-educated individuals. In other words, a more stringent regulation on the use of temporary contracts is likely to reduce the probability of having fragmented trajectories, facilitating young people to reach an employment-secure condition around five years after having left education<sup>28</sup>, with more relevant effects over time for the weakest groups (women and low-educated young people).

A more stringent regulation of individual dismissals (i.e. a higher EPL-P index) is associated with a lower probability of being in&out, but with some adverse effects for highly educated young people (as they have a lower probability of being employment-secure, and a higher probability of being prevalently unemployed). In other words, the more restrictive is the regulation of individual dismissals, the smaller is the relative advantage of highly educated workers (compared to individuals with medium or low education) in terms of rapid labour market entry and of employment security.

ALMP expenditures have positive effects but with differences across educational levels. Higher ALMP expenditures are associated with a lower probability of being prevalently unemployed for all young people, but with larger effects for low-educated individuals. This lower probability of being prevalently unemployed is associated with a higher probability of being employment-secure for low-educated young people and of returning to education for high-school and university graduates.

In Table 6 we consider the combined condition of employment and income security (“overall secure”), and the combined condition of economic success and a good education-occupational match (“overall success”). We report the predicted probabilities and marginal effects for the secure/success outcomes and for only three trajectory types among the insecure/unsuccessful groups (almost always in employment, prevalently employed and in&out). For the other trajectory types (prevalently unemployed, prevalently inactive and return to education) predicted probabilities and marginal effects are very similar in sign, magnitude and significance to those obtained for employment security.

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<sup>28</sup> This does not imply that they stay in the same job. Berloffia et al. (2016) show that an increase in the strictness of the regulation on the use of fixed-term contracts raises the likelihood of staying almost continuously in the labour market, although not with the same employer.

The first interesting result is that young women and men have the same chances to achieve a secure employment condition. The reason is that, although females are more likely to be employment-insecure, they are less likely to be income-insecure. On the contrary, women living in a couple have a significant lower probability of achieving security because, besides the usual effects on unemployment and inactivity, they have also a higher probability of being prevalently employed but income-insecure. Major gender differences are observed also when looking at the probability of achieving a successful employment condition. Women have substantially less chances than men to achieve success. Once more, women in a couple have worse labour market outcomes. They are even less likely to be successful and, among the unsuccessful group, they are considerably less likely to be prevalently employed.

Higher educational levels are associated with a significantly higher probability of achieving a secure employment condition. Further, young people with a university degree are substantially less likely to be in&out and prevalently employed than low-educated individuals. Education has no effects on the probability to achieve success because of the way in which we defined it. However, among the unsuccessful group, young individuals with a university degree have a significantly higher probability of being almost always employed and a lower probability of being in&out. Potential labour market experience increases youth probability of being secure and having a continuous/stable pathway.

**Table 5. Predicted probabilities and marginal effects of the probability to follow Employment Secure/Insecure ESTs**

	Employment-Secure		Employment-insecure								Return to education	
	Pr	St.Err.	Prevalently employed		In&out		Prevalently unemployed		Prevalently Inactive		Pr	St.Err.
Predicted probabilities:	0.75 ***	0.01	0.089 ***	0.00	0.05 ***	0.00	0.06 ***	0.00	0.03 ***	0.00	0.02 ***	0.00
Marginal effects:	dy/dx	St.Err.	dy/dx	St.Err.	dy/dx	St.Err.	dy/dx	St.Err.	dy/dx	St.Err.	dy/dx	St.Err.
Female	-0.23 ***	0.06	0.06	0.04	0.03	0.03	0.04	0.03	0.06 ***	0.02	0.05 ***	0.02
Female in couple	-0.14 ***	0.02	0.08 ***	0.01	-0.01	0.01	0.03 ***	0.01	0.05 ***	0.01	-0.02 ***	0.01
Male in couple	0.06 **	0.02	-0.00	0.02	-0.02 *	0.01	-0.01	0.01	-0.02	0.01	-0.01	0.01
Living in the family of origin	-0.04 ***	0.02	0.03 ***	0.01	-0.02 ***	0.01	0.03 ***	0.01	0.00	0.01	0.00	0.00
Medium education	0.25 **	0.10	-0.10	0.07	0.00	0.05	-0.13 ***	0.04	-0.05 **	0.03	0.04	0.03
High education	0.64 ***	0.11	-0.21 ***	0.07	-0.09	0.06	-0.25 ***	0.05	-0.07 **	0.03	-0.00	0.03
Age	0.01	0.00	0.00	0	0.00 *	0.00	0.00	0.00	-0.00	0.00	-0.01 ***	0.00
Potential labour experience	0.02 ***	0.00	0.00	0	0.00	0.00	-0.01 ***	0.00	-0.00	0.00	-0.01 ***	0.00
EPL-T	0.13 ***	0.05	-0.11 ***	0.03	0.01	0.02	-0.04 **	0.02	0.02 *	0.01	-0.01	0.01
EPL-T * medium education	-0.05 **	0.02	0.04 ***	0.01	-0.00	0.01	0.01	0.01	0.00	0.01	-0.00	0.01
EPL-T * high education	-0.05 **	0.02	0.01	0.01	0.01	0.01	0.02 **	0.01	0.00	0.01	0.01	0.01
EPL-T * female	0.05 ***	0.01	-0.02 *	0.01	-0.00	0.01	-0.01 **	0.01	-0.01	0.01	-0.01 ***	0.00
EPL-P	0.10	0.09	-0.01	0.06	-0.07 *	0.04	0.04	0.07	-0.01	0.03	-0.05 ***	0.02
EPL-P * medium education	0.03	0.03	-0.02	0.02	-0.00	0.01	0.00	0.01	0.00	0.01	-0.01 **	0.01
EPL-P * high education	-0.08 ***	0.03	0.03	0.02	0.02	0.02	0.03 *	0.01	0.00	0.01	0.00	0.01
EPL-P * female	0.02	0.02	-0.01	0.01	-0.01	0.01	0.00	0.01	-0.00	0.01	0.00	0.00
ALMPs	0.60 *	0.31	0.17	0.2	-0.23	0.14	-0.47 ***	0.14	-0.06	0.10	-0.02	0.07
ALMPs * medium education	-0.75 ***	0.24	0.13	0.15	0.06	0.11	0.25 **	0.11	0.14 *	0.07	0.17 ***	0.05
ALMPs * high education	-0.79 ***	0.26	0.16	0.16	0.10	0.12	0.24 *	0.14	0.12	0.08	0.17 ***	0.06
ALMPs * female	-0.23 ***	0.06	0.06	0.04	0.03	0.03	0.04	0.03	0.06 ***	0.02	0.05 ***	0.02
N. observations	5466		696		378		740		471		408	

Notes: Complete estimation results are available from the authors. \*\*\* p<0.01, \*\*p<0.05, \*p<0.10.

Source: Author's estimations based on EU-SILC longitudinal data (2006-2012)

**Table 6. Predicted probabilities and marginal effects of the probability to Secure/Insecure and Successful/Unsuccessful ESTs**

	Overall Secure		Overall Insecure						Overall Successful		Overall Unsuccessful					
	Pr	St.Err.	Almost always employed		Prevalently employed		In&out		Pr	St.Err.	Almost always employed		Prevalently employed		In&out	
Predicted probabilities:	Pr	St.Err.	Pr	St.Err.	Pr	St.Err.	Pr	St.Err.	Pr	St.Err.	Pr	St.Err.	Pr	St.Err.	Pr	St.Err.
	0.38***	0.01	0.30***	0.01	0.16***	0.01	0.05***	0.00	0.15***	0.01	0.49***	0.01	0.20***	0.01	0.05***	0.00
Marginal effects:	dy/dx	St.Err.	dy/dx	St.Err.	dy/dx	St.Err.	dy/dx	St.Err.	dy/dx	St.Err.	dy/dx	St.Err.	dy/dx	St.Err.	dy/dx	St.Err.
Female	0.06	0.07	-0.26***	0.07	0.02	0.05	0.04	0.03	-0.13***	0.05	-0.12*	0.07	0.05	0.06	0.05	0.03
Female in couple	-0.15***	0.02	-0.03	0.02	0.12***	0.02	-0.01	0.01	-0.10***	0.02	-0.10***	0.02	0.14***	0.02	-0.01	0.01
Male in couple	0.02	0.02	0.04*	0.02	-0.01	0.02	-0.01	0.01	0.00	0.01	0.04	0.03	0.01	0.02	-0.02	0.01
Living in the family of origin	-0.04**	0.02	0.00	0.02	0.04**	0.02	-0.03***	0.01	-0.09***	0.01	0.02	0.02	0.06***	0.02	-0.02***	0.01
Medium education	0.52***	0.15	-0.27*	0.14	-0.11	0.09	-0.01	0.05	0.08	0.10	0.08	0.15	-0.02	0.10	-0.00	0.06
High education	0.63***	0.16	-0.01	0.15	-0.16*	0.10	-0.12*	0.06	0.07	0.11	0.42***	0.16	-0.07	0.11	-0.10	0.06
Age	0.01*	0.01	0.00	0.01	-0.00	0.00	0.00*	0.00	0.01**	0.00	0.00	0.01	-0.00	0.00	0.00*	0
Potential labour experience	0.01***	0.00	0.01***	0.00	-0.00	0.00	0.00	0.00	0.00	0.00	0.02***	0.00	-0.00	0.00	0.00*	0
EPL-T	0.11*	0.06	0.04	0.05	-0.13***	0.04	0.02	0.03	0.03	0.04	0.11*	0.06	-0.11**	0.05	0.01	0.03
EPL-T * medium education	-0.10***	0.04	0.04	0.03	0.05**	0.02	-0.01	0.01	-0.01	0.02	-0.02	0.03	0.03	0.02	-0.01	0.01
EPL-T * high education	-0.08**	0.04	0.02	0.03	0.02	0.02	0.01	0.01	-0.02	0.02	-0.02	0.03	0.00	0.02	0.01	0.01
EPL-T * female	0.03*	0.02	0.03**	0.01	-0.02*	0.01	-0.01	0.01	0.04***	0.01	0.02	0.02	-0.02*	0.01	-0.01	0.01
EPL-P	0.13	0.09	-0.02	0.09	-0.01	0.08	-0.07*	0.04	0.01	0.06	0.14	0.10	-0.07	0.08	-0.05	0.04
EPL-P * medium education	-0.1**	0.04	0.11***	0.04	-0.01	0.02	0.00	0.02	-0.02	0.03	0.07*	0.04	-0.04	0.03	0.00	0.02
EPL-P * high education	-0.13***	0.04	0.05	0.04	0.02	0.02	0.02	0.02	-0.03	0.03	-0.00	0.04	-0.02	0.03	0.02	0.02
EPL-P * female	-0.06**	0.02	0.06**	0.02	0.02	0.02	-0.01	0.01	-0.00	0.02	0.02	0.02	0.01	0.02	-0.02	0.01
ALMPs	-1.05**	0.43	1.35***	0.36	0.41	0.27	-0.27*	0.15	-0.08	0.26	1.06***	0.39	-0.12	0.30	-0.29*	0.16
ALMPs * medium education	0.57	0.35	-0.89***	0.27	-0.18	0.20	0.04	0.12	-0.22	0.20	-0.66**	0.30	0.19	0.22	0.12	0.12
ALMPs * high education	0.60*	0.36	-0.95***	0.28	-0.22	0.21	0.13	0.13	-0.15	0.20	-0.83***	0.31	0.23	0.23	0.20	0.13
ALMPs * female	-0.15	0.14	0.18	0.13	-0.01	0.12	0.08	0.07	-0.02	0.09	0.05	0.14	0.04	0.12	0.03	0.06
N. observations	2844		2124		1155		415		1158		3528		1426		426	

Notes: Complete estimation results are available from the authors. Marginal effects for the other trajectory-types are comparable to those obtained for employment security (tab. 5). \*\*\*p<0.01, \*\*p<0.05, \*p<0.10. Source: Author's estimations based on EU-SILC longitudinal data (2006-2012).



The effects of EPL-T on security are very similar to those described above, confirming that the regulation on temporary contracts affects mainly the type of employment trajectory that individuals follow. On the contrary, the EPL of regular contracts appears to have some additional effects on income security. Indeed, a higher EPL-P index is associated with a lower probability of being secure not only for university graduates, but also for medium-educated individuals, and even more for females. This additional effect for the latter two groups is driven mainly by an income effect, because both high-school graduates and females have a higher probability of being always employed but income-insecure where the EPL-P index is higher. In other words, a more stringent regulation of individual dismissals generates some problems in terms of employment security for highly highly-educated individuals, but it also generates some problems in terms of low income for those high-school graduates and females who are able to enter a stable employment trajectory. Higher expenditures on ALMPs have a similar income effect for low-educated individuals (and to a much lesser extent for high-school graduates). As a result, the positive effect on employment security described above is reversed, and higher ALMP expenditures are associated with a lower overall security for low-educated individuals.

The effect of our policy variables is less widespread for the successful dimension of employment quality. Interestingly, a higher EPL-T index increases female probability of being successful, and higher ALMP expenditures again increase the probability of being almost always employed but unsuccessful for low educated individuals.

## **5. Conclusions**

Labour markets are increasingly characterized by workers moving quite frequently across jobs. Therefore, evaluating youth labour market performance by focusing on the features of the job held at a specific point in time may be misleading. In this paper, we develop a new definition of employment quality that takes into account various features of individuals' employment condition over a certain period of time. In particular, we consider four dimensions: employment security, income security, economic success and a successful match between education and occupation. We evaluate each dimension from a dynamic point of view, using information over a two-year period and we use individual employment status trajectories to control for the heterogeneity of the insecure and/or unsuccessful group of individuals.

We use EU-SILC longitudinal data to analyse the way in which individual and labour market characteristics affect the employment quality of young Europeans (aged 16-34) around five

years after leaving full-time education. Our results show that there are considerable differences by gender and educational attainment on the probability of achieving a good employment quality as well as experiencing better employment status trajectories. Women, compared to men, are less likely to achieve employment-security around five years after having left education, i.e. they are considerably more likely to experience career interruptions and have more fragmented career pathways. However, if they are able to follow a stable employment trajectory, they have more chances than men to have a stable labour income above the poverty line. As a consequence, the chances of achieving overall security are the same for men and women. On the contrary, women have always less chances to be successful, even when they manage to remain continuously employed.

Education plays a crucial role in ensuring a good employment quality. First, it allows young people to get a rather stable and continuous employment pathway. Second, it also increases the chances of being income-secure. More precisely, getting a high-school diploma is decisive to avoid the risk of being continuously unemployed/inactive, and to avoid (income) poverty. Obtaining a university degree contributes to reducing the risk of following fragmented employment trajectories. However, conditionally on being continuously employed, it does not increase the chances to achieve income security, compared to high-school graduates. As expected, it increases the risk of being over-educated (i.e. experiencing an educational-occupational mismatch).

The regulation of temporary contracts mainly affects the type of employment trajectory followed by young people, whereas the regulation of permanent contracts appears to have some additional effects on income security. Stricter rules on the use of temporary contracts tend to reduce the probability of having fragmented trajectories, making it easier to reach employment security around five years after having left education, with more relevant effects for women and low-educated young people. A more stringent regulation of individual dismissals generates some difficulties to reach employment and overall security for university graduates, but it also reduces the chances of being overall secure for females and high-school graduates. Thus, for these two groups, stricter rules on individual dismissals seem to have adverse effects on income security. Indeed, a higher EPL-P increases the likelihood of having a labour income below the poverty line when following a continuous employment trajectory.

ALMP expenditures appear to have positive effects on employment status trajectories by reducing the probability of being prevalently unemployed, and increasing the likelihood of achieving employment security, especially for low-educated individuals. However, they also

have some negative effects in terms of income, because they increase the probability of being insecure and unsuccessful when following a continuous employment trajectory. Once more, these effects are much larger for low-educated individuals.

From a policy perspective, our findings suggest, first, that there is still a pressing need to enhance women's chances to remain continuously in employment and to move up in the labour income distribution. Indeed, the well-known gender differences in labour market outcomes (career interruptions, job segregation, wage penalty, etc.) are already remarkable in the early stage of women's working life. Second, loosening the rules on the use of temporary contracts, besides generating more difficulties for women (and low-educated individuals), does not appear to be an effective policy tool to improve youth employment outcomes. In fact, it reduces the chances of achieving a sufficiently secure employment condition around five years after having left education for all young people. Finally, both researchers and policy makers should pay attention to a possible trade-off between employment and income effects of stricter rules for individual dismissals and of ALMPs expenditures.

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