Employment and income security of young Europeans: A dynamic approach.

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Abstract

The present work takes a dynamic perspective for the evaluation of individuals' employment and income security, around five years after education exit. Employment security is defined by means of monthly employment status trajectories. Income security refers to a situation in which individuals' annual earnings are (and remain) sufficiently high to avoid the risk of poverty. We use EU-Silc longitudinal data to examine whether, on average, labour market institutions (in particular, employment protection legislation) and policy expenditures influence youth probability of being employment or income-secure. The empirical analysis reveals the still pressing need for policy measures to enhance security, in particular for females and low-educated individuals, and the potential positive role of stricter rules on the use of temporary contracts and of active labour market policy expenditures.

Keywords: Income security, employment security, youth, gender, EU-Silc longitudinal data

JEL Classification Codes:

1. Introduction

[To be completed]

Increased flexibility of labour markets and the concern of policy makers to combine flexibility with security require a change in the outcomes used to assess youth inclusion into the labour market. In particular, we need a definition of employment security based on employment status trajectories instead of on the type of job. Second, we need to analyse employment security jointly with income security, i.e. to combine whether experiencing a stable employment trajectory is a sufficient condition to have high-enough and stable earnings.

In this paper, we adopt an operational definition of employment security introduced by Berloffa et al. (2016), and we complement it with a dynamic analysis of income security. Our analysis has two main objectives. First, we want to quantify the share of young Europeans who, around five years after having left education, have a secure employment condition, with respect to both their employment status sequence and the level and evolution over time of their annual earnings. Second, we examine whether, on average, the EPL and labour market policy expenditures (active) influence the probability of being employment- or income-secure, once other macro-level variables and individual characteristics are controlled for. To this end, we use EU-Silc longitudinal data for the period 2005-2012.

The rest of the article is organized as follows. Section 2 reviews the relevant literature. Section 3 presents our definitions and a descriptive analysis of the employment and income security condition of young Europeans. Section 4 describes the econometric model used to estimate the main determinants of individuals' employment and income security and discusses empirical findings. Section 5 concludes.

2. Literature review

[to be completed]

The shift of policy focus from job security to employment security that occurred over the last decade requires the adoption of a dynamic perspective on young people's labour market performance. From an individual perspective, the mix of policies at the base of the flexicurity approach, should ensure 'employment security', i.e. a situation in which, over a long enough time period, individuals are prevalently employed, with eventually only short unemployment spells between one job and the other. Indeed, in many countries a large share of young individuals are employed with fixed-term contracts for a prolonged period, and moving between jobs is

increasingly frequent.[1] Therefore, as underlined in Berloffa et al. (2016), we should go beyond the simple idea of job security associated with the type of contract (i.e. at a single point in time), and use a definition of individual employment security based on employment status trajectories. In particular, an individual can be employment secure either because he/she has a secure job, or because he/she experiences some sort of job- insecurity, but the overall personal and labour market conditions allow him/her to find new jobs after a sufficiently short period of time.

The empirical literature that examined the consequences of labour market deregulation focussed separately on these two components of individual employment security: easiness of finding new jobs and job security. One stream of literature examined the effects of EPL on aggregate indicators measuring the facility to enter or re-enter employment: transition to first job, exit rates from unemployment, hiring rates. A second stream of literature focussed on job security, and analysed the use of temporary contracts (associated with lower job security), and the transition towards permanent contracts (with higher job security). 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).

The second stream of literature focuses on job security, and highlights that often temporary contracts are used as a cheaper alternative to permanent ones, thus reducing individual job security without any aggregate gain in terms of employment (Scherer 2004; Guell and Petrolongo 2007; Gash 2008; Kahn 2010; Baranowska et al. 2010; Berton et al. 2011). In some countries – such as Germany, Austria, UK, Sweden and the Netherlands – temporary contracts can serve as stepping stones to more stable and better paid jobs (EC 2010b: 140-142; de Graaf-Zijl et al. 2011), in other countries – such as Spain, Italy, Greece but also France and Poland – marginal jobs are seen as 'traps' from which there is little chance of escaping (D'Addio and Rosholm 2005; Berloffa et al. 2014; Givord and Wilner 2015). These results suggest that, in some countries, the job-insecurity associated with the use of temporary contracts is limited to the first few years of labour market entry, after which it is transformed into the job security associated with permanent contracts. In other countries, the condition of being job-insecure lasts, instead, for a much longer period of time.

Unfortunately, all these studies do not help much in assessing individual employment security because they do not combine information on job security with information about the duration of

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[1] Generally, when workers are asked to state their preferences with respect to different aspects of work, they rank employment security as the most important item in almost all countries (Green, 2009; OECD, 2011a).

individual unemployment spells between different jobs.[2] In this paper we adopt the definition of individual employment security based on monthly employment status trajectories introduced by Berloffa et al. (2016).

Studies focusing on the security dimension of the flexicurity approach generally consider whether unemployment benefits and other passive labour market policy expenditures are sufficient to ensure an economic secure condition during the unemployment periods generated by the higher flexibility of the labour market. In the case of young people, for example, Leschke and Finn (2016) show that labour markets' deregulation produced a 'vicious' flexibility-security nexus: higher contractual flexibility means more frequent unemployment spells and lower access to unemployment insurance benefits (as they require a certain period in employment within specific periods of time).

Two other streams of the literature deal with income security. The first one examines the issue of in-work poverty, while the second is more concerned with individuals' and households' overall economic security.

"In-work poverty" is defined as a condition in which, although having worked for a sufficiently long number of months, equivalised household disposable income is not sufficient to avoid poverty.[3] 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). According to these studies, men and young people are particularly vulnerable, while a low educational level is associated with an almost fivefold increase in the risk of being among the working poor, in comparison to workers with a high level of education.[4]

The stream of literature investigating economic security is quite large with most of the studies looking at measurement issues. Currently available measures of economic insecurity differ in terms

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[2] Hijzen and Menyhert (2016) provide a comprehensive discussion of the labour market security dimension of the OECD's job quality framework and provide evidence that the well-being implications of unemployment are likely to depend not only on the unemployment rate but also on the frequency and duration of unemployment spells. In particular, they find that, at a given level of unemployment, a higher number of relatively short unemployment spells is preferable to a lower number of relatively long unemployment spells.

[3] A person is considered to be working poor if he or she has worked at least 6 or 7 months (Bardone and Guio, 2005; Eurostat, 2010; Larsson and Halleröd, 2011; Lohmann, 2009; Marx and Nolan, 2014; Mosisa, 2003; Peña-Casas and Latta, 2004) during the past 12 months. In other works the working criterion is set to only 1 month (Marx et al., 2012; Peña-Casas and Latta, 2004), Nightingale and Fix (2004) while Maitre et al. (2012) set the working criterion to full-time full-year employment. In-w.ork poverty rate in EU28 has been increasing from 2006 to 2014, from 8% to 9.6%

[4] For a review of the literature, see Crettaz (2013), Eurofond (2010), Frazer and Marlier (2010) and Peña-Casas and Latta (2004)

of which data are considered most important to define the concept: income, wealth or some combination of income and wealth. In the existing research we can find three main approaches.

The first approach is that of using a weighted index of multiple measures (e.g., Osberg and Sharpe, 2005), that try to captures multiple dimensions. For instance the "IEWB Index of Economic Security" is considering the security in the event of unemployment, sickness, disability, widowhood and old age, at an aggregate level. The "Economic Security Index" (ESI) proposed by Hacker et al (2010, 2011, 2012) is instead "micro-based", and captures the frequency of large net income declines experienced by individuals.

The second approach is measuring the buffering role of private wealth (e.g., Lusardi *et al.*, 2011, Bossert and D'Ambrosio, 2009 and 2013; D'Ambrosio and Rohde, 2012). For example, D'Ambrosio and Rohde (2012) propose a measure of insecurity which is a weighted sum of current wealth and past losses and gains in wealth, where past declines are more heavily weighted than past increases (loss aversion is the rationale) and where events farther in the past get less weight than more recent events. Such measurements, however, do not capture the likelihood that an individual will suffer an income shock and will need to draw on this wealth or resources.

The third approach focuses on income or expenditure volatility in order to qualify the individuals' security. This approach is similar to the second approach, but it uses incomes instead of wealth, and it does not take into account the capacity of individuals to use their wealth to reduce the effect of income changes on consumption. Even if this approach falls under the wider area of economic security, Rohde, Tang and Rao (2014) are careful to note that their measure "income volatility" or "income insecurity" rather than "economic insecurity".

In this paper we also focus on income security. Differently from the literature on the security dimension of the flexicurity approach, we do not consider public compensations in the event of job loss (as also in the ESI index), but we want to assess whether young people's annual earnings would be sufficient to allow them to avoid the risk of poverty, if they had to rely only on their labour income. Furthermore, we analyze employment and income security simultaneously, 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. The literature that considers both dimensions is quite scarce. Hallerod et al (2016) investigates whether the "working poor" it is mainly a low-wage problem or an unemployment problem.[5] The results suggest that in-work poverty in Europe is mainly an unemployment problem among the self-employed and for the ones moving in and out

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[5] The working poor could be poor because they have too low hourly wages, experience recurrent unemployment spells, work too few hours or are experiencing a mix of all of these conditions (Crettaz, 2011; Halleröd and Larsson, 2008a; Larsson and Halleröd, 2011).

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.[6] For this reason we provide both a separate analysis of employment and income security, and an overall assessment of these two dimensions taken together. The next section will provide a more detailed description of our definitions.

3. Data, definitions and descriptive statistics

In this section, we take an individual, rather than an institutional, perspective on employment and income security, considering individuals' employment status trajectories, and the level and evolution of their annual earnings over time.

3.1 Data and definitions

We use the 2009 to 2012 longitudinal waves of the European Union Statistics on Income and Living Conditions (EU-SILC), which cover the years from 2006 to 2012.[7] The data make it possible to track 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.[8] Our analysis focuses on young people aged between 16 and 34, who left education three-to-five years before the first interview,[9] and who have not been inactive during the entire 3-year period under consideration (less than 3% of our sample, mainly women). We have chosen to evaluate young people's employment and income security, after a period of at least three years from education exit because after this period individuals' position in the labour market appears more stable. Indeed, according to Eurostat (2015), three out of four young Europeans (aged 15-34) are employed after three or more years since completion of the highest level of education, and similar employment rates are recorded after five or more years. Because of data limitations, we are able to consider only the following 17 European countries: Austria (AT), Belgium (BE), Czech Republic (CZ), Denmark (DK), Estonia

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[6] They define as "dual insecure" workers experience employment and income insecurity at the same time.
[7] With the revisions released in August 2013.
[8] The reason why we need three complete interviews is explained in footnote 12. 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.
[9] In selecting the sample, we had to resort to data approximation/imputation because we did 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, and we selected those individuals who, at the first interview, were older than this official age plus 3 but younger than this official age plus 5. The official age is taken from European Commission (2014).

(EE), Greece (EL), Spain (ES), Finland (FI), France (FR), Hungary (HU), Italy (IT), the Netherlands (NL), Poland (PL), Portugal (PT), Sweden (SE), Slovenia (SI), and Slovakia (SK).[10]

As discussed in Berloffa et al. (2015), some years after leaving education, a desirable outcome is the achievement of a secure employment condition, with respect to both the characteristics of the employment pathway and the level of annual earnings. In particular, employment trajectories should be sufficiently stable (i.e. with long enough spells of employment and short enough spells of unemployment in between) and the level of annual earnings should allow, at least, to avoid poverty. Indeed, we believe that having a secure job or being able to change it without going through a too long period of unemployment, besides earning a living wage, are important aspects that have to be accounted for when defining individuals' secure employment condition.

Individuals' employment security does not coincide with the simple idea of job security. Indeed, labour market flexibility implies that workers can move quite frequently across jobs, with possible unemployment spells in between. Thus, the increasing frequency of job changes, and the concern of policy makers to combine flexibility and security, require to change the object of analysis from the single job to an entire employment status trajectory. In line with Berloffa et al. (2016), we adopt a dynamic definition of employment security based on monthly employment status trajectories. We define as "employment-secure" those individuals whose employment status trajectory encompasses employment spells lasting (each) at least six months[11], and unemployment spells lasting (each) at most three months[12] over a 24 month-period.[13] The definition reflects a situation in which, over a long enough time, individuals are prevalently employed (in each year individuals are employed for at least nine months, i.e. 75% of the time), with eventually only short unemployment spells between one job and the other (i.e. the search period to move from one job to the other is relatively short).

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[10] IE, IS, LU and NO are excluded because of the small sample size (less than 100 observations). BG, CY, LT, LV, MT, RO are excluded because the policy variables that we use in the econometric analysis are not available for them. UK is excluded because its definition of the income reference period is not consistent with that of the other countries, and with the data used to identify employment security.

[11] A period of six months has been chosen for employment spells because it is a reference period used in both surveys and policies. For example, EU-SILC refers explicitly to a minimum length of six months when defining individuals' first regular job. The actual question regards the age at which individuals started their first regular job, which is designed to permit the calculation of the total potential time that the person could have spent in the labour force.

[12] For unemployment, a maximum period of three months is in line with the regulation of the European Youth Guarantee, which requires Member States to provide unemployed people with a good-quality job or a training opportunity within four months.

[13] We consider a 24 month-period in order to be consistent with the reference period used to identify income security. Indeed, information about income are provided in the annual interviews. Since data on income and monthly employment status refer to the year preceding the interview, the only overlapping period for information about the two dimensions of security are the two calendar years preceding the third interview.

Income security is the second key dimension that we consider. We define as "income-secure" those individuals whose annual labour earnings[14] are above the at-risk-of-poverty threshold[15], and do not fall over the same two years used to evaluate employment security. The definition reflects a situation in which, over a long enough time, individuals are able to earn incomes that are sufficient as to avoid the risk of poverty. The poverty line might be a too low threshold to capture income security. Indeed, in many countries it corresponds to monthly earnings that are between 20% and 30% lower than the minimum wage. However, it is easily comparable across countries and it ensures that those individuals who can rely only on their labour income are not at risk of poverty.

Identifying those young people who experience security is not enough from a policy point of view, because the group of those who did not reach this outcome is quite heterogeneous. In particular, we consider the heterogeneity in terms of either income-related characteristics or type of employment trajectory. Regarding the former, we distinguish those who had no labour income over the two years, those whose income was below the poverty line in at least one year, and those whose income was above the poverty line in both years, but decreasing over time. With respect to the type of employment status trajectories (ESTs), we consider both the length and number of employment and non-employment spells.[16] Indeed, individuals with frequent status changes require different policy interventions compared to individuals who remain for long periods in unemployment or inactivity. Furthermore, we consider in a separate group those individuals who return to education for a relevant number of months (i.e. at least 6 consecutive months) because their decision of returning to education might have important consequences for their future prospects. More precisely, we identify six EST-types:

1. *almost always in employment*: it includes individuals who were either always employed during the entire period, or they had a short spell in education (less than six consecutive months);

2. *prevalently in employment*: it includes individuals who experienced long employment spells (at least 12 consecutive months), few spells of non-employment (unemployment, inactivity, or education), with 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;

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[14] Labour earnings include both wage and salaries for employees and profits and losses for self-employed.

[15] This threshold corresponds to 60% of the national median equivalized disposable income after social transfers.

[16] We select young people who exit full-time education 3 to 5 years before the first interview. Employment and income security are evaluated during the two calendar years corresponding to the first two interviews. In contrast, ESTs cover a 3-year period that starts in the calendar year before the first interview. This means that we have a time span of 2 to 4 years between education exit and the beginning of the observation period for ESTs.

3. *prevalently in unemployment*: it includes individuals who experienced a long spell of unemployment (at least 12 consecutive months), some periods of employment or inactivity/education, but the total number of months in unemployment/inactivity is larger than the total number of months in employment, and the number of employment/non-employment changes is low. It also includes individuals who were always out of employment, but whose number of months in unemployment is larger than the number of months in inactivity;

4. *prevalently in inactivity*: it includes individuals who remained at the margin of the labour market for almost the entire period, with a number of months in inactivity larger than the number of months spent in unemployment. They could be also in education and employment but for few short periods (less than six months);[17]

5. *in&out employment*: it includes individuals who changed their employment status several times (they enter and exit paid employment for at least four times over the 36 months considered);

6. *return to education*: these individuals returned in full-time education for at least six consecutive months during the observed period.

A representation of individual trajectories belonging to the different EST-types can be found in Berloffa et al. (2015).

3.2 Descriptive analysis

In table 1 we report the shares of young people who, around 5 years after having left education, achieved each one of the two security dimensions: employment and income security. 67% of young individuals in our sample experience employment security, while only 42% enjoy income security. Since almost all income-secure individuals are employment-secure, the difference between these two percentages means that a large group of employment-secure individuals experiences an insecure condition in terms of their income, either because they have an annual income below the poverty line, or because their (nominal) income is declining over time. We will discuss this issue in more details below.

Overall, 40% of young individuals have an overall secure employment condition (combining employment security with income security). However, there are relevant gender differences: young males are more likely than young females to have a secure employment condition, whatever the dimension of security taken into account. It is worth noting that the difference in the shares of employment-secure and income-secure individuals is similar across gender, suggesting that

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[17] We exclude from the analysis those individuals who were inactive for the entire length of the sequence.

employment security is far from being a sufficient condition for income security for both males and females.

Education plays a crucial role in ensuring an overall secure employment condition: almost half of university graduates experience security, while only 16% of those with lower secondary education. Also in this case, the gap between the fractions of employment-secure and income-secure young people is large (more than 20pp) for all educational levels. We will discuss below whether this is due to different reasons for individuals with different educational levels. Southern countries stand out for the lowest share of young people enjoying each dimension of, and overall, security. On the contrary, Eastern countries have the highest share of overall secure individuals, although they have a lower share of employment-secure young people than Continental and Nordic countries. This means that in these countries it is relatively less likely to face income insecurity for those who are able to enter a sufficiently stable employment trajectory. Finally, the impact of the economic crisis results in an overall reduction in the share of young people enjoying a secure employment condition(37% in 2009-2011 compared with 45% in 2005-2007), driven more by the income security dimension.

Table 1. Descriptive statistics of employment and income security

	SECURE EMPLOYMENT CONDITION		
	Employment Security	Income Security	Overall security (employment and income security)
All sample	0.67	0.42	**0.40**
Gender			
Male	0.72	0.46	**0.44**
Female	0.62	0.38	**0.35**
Education			
Low	0.41	0.18	**0.16**
Medium	0.65	0.41	**0.39**
High	0.78	0.51	**0.48**
Country group			
Nordic	0.71	0.43	**0.39**
Continental	0.74	0.45	**0.42**
Southern	0.58	0.37	**0.33**
Eastern	0.69	0.45	**0.43**
ESTs observed in			
2005-2007	0.68	0.48	**0.45**
2009-2011	0.66	0.38	**0.37**

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).

Since the group of insecure individuals includes those who were continuously unemployed/inactive and had no labour income, in order to have a clearer picture of young people's conditions, we disaggregate the shares of employment- and income-insecure young people in two components. The

first component is the fraction of individuals with no months in employment (or no income) over the two-year period, while the second component is the incidence of employment and income insecurity among those who had at least one employment spell (or report some labour income in at least one year). Note that this second component can be interpreted as a conditional probability, i.e. the probability of experiencing employment or income insecurity, conditionally on having had some employment spells (or some income).

Table 2 shows that 9% of young individuals has been continuously out of employment, and had no income, over the two years considered.[18] This corresponds to about one out of three employment-insecure individuals and one out of six income-insecure young people. As a consequence, the conditional probabilities of being insecure are lower than the unconditional ones, but the difference is relatively larger for employment insecurity than for income insecurity.

We have seen above that females have a 10pp higher probability of being employment-insecure, and an 8% higher probability of being income-insecure than males. From table 2 we can see that these differences are partly due to a higher female probability of non-employment (12% vs. 7%), but also to a higher probability of having a fragmented employment trajectory (30% vs. 22%), and of being income-insecure when earning some labour income (57% vs. 50%). Indeed, odds ratios of being employment- or income-insecure between males and females are the same conditionally and unconditionally. In both cases females have a 36% higher probability of being employment-insecure and a 15% higher probability of being income-insecure. Note that the gender gap is larger for employment insecurity than for income insecurity.

Similar considerations apply also for education. Both secondary and tertiary education reduce significantly the odds of non-employment, as well as the odds of being employment- and income-insecure conditionally on employment. The share of young people without any month in employment reduces from 23% for low-educated individuals, to 10% and 4% for high-school and university graduates respectively. The conditional probability of being employment-insecure reduces from 47% for low-educated individuals to 28% and 19% for high-school and university graduates; whereas that of being income-insecure goes from 77% to 54% and 47% respectively. However, the marginal effects of the two educational levels on the conditional probabilities of being employment- and income-insecure are different. Both educational levels have larger effects for employment insecurity than for income insecurity. Moreover, tertiary education is somewhat less

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[18] The shares of individuals with no months in employment and with no labour income in both years are very similar. The former can be larger if young people worked for periods lasting less than a month, thus having a positive labour income, but they do not consider this as the main activity status for that month. However, differences never exceed 2 pp, and therefore we present only the shares of those with no employment spells.

important than secondary education for both dimensions. The conditional odds of being employment-insecure is 68% higher for low-educated individuals compared to high-school graduates, while it is (only) 47% higher for the latter compared to university graduates. The conditional odds of being income-insecure is 43% higher for low-educated individuals compared to high-school graduates, and only 15% higher for the latter compared to university graduates. Figures clearly suggest that education matters to avoid long periods out of employment and to obtain a rather stable employment pathway. It matters also, but to a lesser extent, to have a secure income.

Southern Europe stands out again for the highest shares of people who had no experience in paid work during the period and of people who are employment-insecure, though having spent some months in employment. However, the conditional odds ratios of being insecure are much lower than the unconditional ones. For example, in Southern countries young people have a 45% higher unconditional probability of being employment-insecure than in Nordic countries, but the odds ratio reduces to 1.23 (i.e. a 23% higher probability) if we consider the conditional probabilities. Thus, in Mediterranean countries young people have much more difficulties in entering employment than in other country groups, and also more difficulties, but to a lesser extent, in following a sufficiently continuous employment trajectory. Cross-country differences in terms of income insecurity are similar but smaller than those observed in terms of employment insecurity. Southern countries always record the worst conditions, but the odds of being income-insecure for individuals in these countries are at most 16% higher than in other country groups.

We noted above that the economic crisis had much larger effects on income security than on employment security. Indeed, there is a 10pp higher probability of being income-insecure in 2009-2011 than in 2005-2007. This gap is not due to a larger probability of no employment, and therefore of having no income, during the crisis (this probability increases only by 1pp). It is due to a larger share of individuals with earnings either below the poverty line or decreasing over time. The increase of this share is only partly explained by a higher incidence of more fragmented employment trajectories during the crisis. Indeed, the share of employment-insecure individuals among those with at least one employment spell is only 2pp higher in 2009-2011 than in 2005-2007. The major reason must be a change in the evolution of labour income over time. We will discuss this in more details below.

Table 2. Shares of employment-insecure individuals with or without work experience

	Shares of employment-insecure individuals with no months in employment (among all individuals)	Employment-insecure individuals		Income-insecure individuals	
		Shares among all individuals	Shares among individuals with at least 1 month in employment	Shares among all individuals	Shares among individuals with a positive income in at least 1 year
Sample	0.09	0.33	0.09	0.58	0.53
Gender					
Male	0.07	0.28	0.07	0.54	0.50
Female	0.12	0.38	0.12	0.62	0.57
Education					
Low	0.23	0.59	0.23	0.82	0.77
Medium	0.10	0.35	0.10	0.59	0.54
High	0.04	0.22	0.04	0.49	0.47
Country group					
Nordic	0.04	0.29	0.04	0.57	0.55
Continental	0.06	0.26	0.06	0.56	0.53
Southern	0.14	0.42	0.14	0.63	0.58
Eastern	0.08	0.31	0.08	0.55	0.50
ESTs observed in					
2005-2007	0.09	0.32	0.09	0.52	0.47
2009-2011	0.10	0.34	0.10	0.62	0.57

Notes: See table 1.
Source: Authors' own calculations based on EU-SILC longitudinal data (2006-2012).

Given our definition of income security, there are various cases in which young people can be classified as income-insecure. The first is the one that we have just discussed, i.e. not having any labour income in both years. The second case is when individuals' labour income is positive but below the poverty line in at least one year. The third case is when individuals' labour income is above the poverty line in both years, but it is decreasing over time (in nominal terms). In table 3 we examine the composition of the income-insecure group, excluding those individuals who had no labour income in both years. We label this group as the 'working income-insecure' group. Among this group, we distinguish: i) individuals whose income was below the poverty line in both years (whom we label as "poor workers"); ii) individuals whose income was below the poverty line in the first year but it moved above it in the second year (whom we label as "potentially secure"); iii) individuals whose income was above the poverty line in the first year but moved below it in the second year (whom we label as "vulnerable").

About one out of four working income-insecure individuals can be considered "poor", because he/she has an annual labour income below the poverty line in both the years. This corresponds to about 14% of all young people who managed to get a job and earn some positive income over the two years considered (i.e. of all 'working' young people). Another 13% of the working income-insecure group (i.e. 7% of the working young people) is vulnerable, because they had an initial

income above the poverty line, but experienced a worsening in their economic condition, ending up below the poverty line. Another group with somehow less worrying conditions is represented by those individuals who had a labour income below the poverty line in the first year, but above it in the second (18% of the working income-insecure, 10% of the working group). This could be due to either a permanent or a temporary increase in income. In the former case, these individuals would become income-secure in the future; in the latter case they would move in and out from (labour income) poverty. If we consider all these three groups, around five years after having left education, one out of three 'working' young individuals (or two out of five young individuals) are poor or at risk of poverty in terms of their annual labour income.

Finally, there is a group of individuals who are non-poor in both years, but who experienced a reduction in their nominal income (43% of the working income-insecure, 23% of the working group). Clearly, not all these individuals are at risk of poverty. However, the reduction in their nominal income is a signal of some earning difficulties encountered by this group of people, and therefore we consider them as being income-insecure.

To summarise, if we consider all young people who are not permanently out of the labour market around five years after they left education, we have the following picture. About 40% can be considered income-secure; about 20% have an income persistently above the poverty line but diminishing over time; the remaining 40% is poor or at risk of poverty in terms of their annual labour income. Being poor or at risk of poverty is either because they have no income in both years (10%); or because their income is below the poverty line in both years (13%); or because their income is above the poverty line in the first year and below it in the second year (6%); or, finally, because their income is below the poverty line in the first year and above it in the second one (9%).

Table 3 shows that the composition of the working income-insecure group varies according to individual characteristics and country groups. Working income-insecure males are more likely to be poor and vulnerable workers (29% vs. 22% and 14% vs. 11%), whereas females are more likely to have annual incomes above the poverty line but decreasing over time (48% vs. 39%). No major gender differences are observed in the incidence of potentially secure workers.

Low-educated individuals are much more likely to be poor than those of high-school and university graduates (51% vs. 26% and 15%, respectively). However, they are also more likely to be potentially secure workers. This evidence could be partly explained by the higher likelihood of low-educated individuals to be employment insecure (thus, having a higher volatility of labour income over time) but also to their lower earnings possibilities. It is somewhat worrisome the evidence of

difficulties encountered by highly educated individuals who have to cope with decreasing (above-poverty-line) incomes over time.

Continental and Southern countries exhibit the higher shares of poor workers among the working income-insecure group, while in Northern Europe we find the highest share of people who experience a reduction in their (above-poverty-line) incomes. The crisis induced a reduction in the incidence of potentially secure individuals and an increased incidence of those who are poor or experienced a worsening in their economic conditions.

Table 3. Distribution of income-insecure individuals (with a positive income in at least 1 year), according to some income-related characteristics

	Poor workers[a]	Vulnerable workers[b]	Potentially secure workers[c]	Non-poor, problematic[d]
Sample	0.26	0.13	0.18	0.43
Gender				
Male	0.29	0.14	0.18	0.39
Female	0.22	0.11	0.18	0.48
Education				
Low	0.51	0.10	0.27	0.12
Medium	0.26	0.15	0.19	0.41
High	0.15	0.11	0.15	0.59
Country group				
Nordic	0.22	0.13	0.13	0.52
Continental	0.27	0.10	0.20	0.43
Southern	0.31	0.13	0.19	0.38
Eastern	0.21	0.14	0.19	0.46
ESTs observed in				
2005-2007	0.24	0.12	0.25	0.40
2009-2011	0.26	0.12	0.19	0.44

Notes: See table 1. Shares are computed among the sub-sample of income-insecure individuals with a positive income in at least 1 year.
a) Individuals with income below the poverty line in both years.
b) Individuals with income above the poverty line in the 1st year and below the poverty line in the 2nd year
c) Individuals with income below the poverty line in the 1st year and above the poverty line in the 2nd year
d) Individuals with incomes above the poverty line in both years, but decreasing over time.
Source: Authors' own calculations based on EU-SILC longitudinal data (2006-2012).

Besides looking at the composition of the (income) insecure group according to the characteristics of their labour income, it is interesting to look at the characteristics of their employment status trajectories. Table 4 shows the distribution of the six EST-types (around 5 years after having left full-time education) for the whole sample and for the overall insecure group (which, as we have already seen, is mainly identified by the income security dimension). When considering the whole sample, about 55% 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.

As one would expect, insecure young people are less likely to be almost always in employment. Among this group, young women are less likely than man to be almost always in employment (30% of women vs. 41% of men) and more likely to be prevalently inactive (15% of women vs. 3% of men). No relevant gender differences emerge for the other EST-types. University and high-school graduates are much more likely to be almost always in employment than individuals with low education (49% and 32%, respectively, vs. 21%), and much less likely to be prevalently in unemployment (9% and 16%, respectively, vs. 26%). Overall, among the insecure group, 71% of university graduates are almost always or prevalently employed. This percentage reduces to 55% for high-school graduates and to only 41% for low educated individuals. However, only 16% of young people with a low education level choose to return to education.

Table 4. Descriptive statistics on ESTs

	Almost always in employment	Prevalently in employment	Prevalently in unemployment	Prevalently in inactivity	In&out	Return to education
All sample	0.55	0.19	0.09	0.06	0.06	0.05
Insecure people	0.36	0.22	0.15	0.09	0.10	0.08
Insecure people						
Gender						
Male	0.41	0.21	0.16	0.03	0.10	0.08
Female	0.30	0.24	0.14	0.15	0.09	0.08
Education						
Low	0.21	0.20	0.26	0.07	0.10	0.16
Medium	0.32	0.23	0.16	0.11	0.11	0.08
High	0.49	0.22	0.09	0.08	0.08	0.05
Country group						
Nordic	0.41	0.20	0.04	0.08	0.19	0.08
Continental	0.45	0.22	0.08	0.04	0.11	0.11
Southern	0.28	0.22	0.22	0.05	0.10	0.13
Eastern	0.37	0.23	0.13	0.15	0.08	0.04
ESTs observed in						
2005-2007	0.34	0.20	0.18	0.10	0.09	0.08
2009-2011	0.38	0.20	0.15	0.07	0.10	0.10

Notes: see table 1. DK is not included in the analysis because of the low number of cases in some EST types.
Source: Authors' own calculations based on EU-SILC panel data (2006-2012).

The Southern country group stands out for the difficulties that young people face in the labour market: only 50% of insecure individuals are almost always or prevalently employed against 61% or more in the other country groups. Southern Europe also exhibits the highest share of young individuals who are insecure and prevalently unemployed. However, Eastern European countries stand out for the highest share of young people prevalently inactive. No important differences are observed in the distribution of young insecure people by EST-types before and during the crisis.

4. Empirical methodology and results

4.1 Methodological issues

We estimate a probit model for employment security, income security and overall security (including both employment and income security) as a function of individual and institutional characteristics.[19] Probit estimates allow us to understand how individual and institutional characteristics affect youth probability of achieving the various dimensions of security that we consider. However, to better understand the extent to which the same characteristics are likely to affect also the employment pathways of insecure individuals, we estimate a multinomial logit model for the interaction between ESTs and employment security, income security and overall security.

Among individual characteristics we include 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)[20], household and living arrangements. In order to control for business cycle fluctuations, we include the GDP growth rate. We also control for country and year fixed effects. All individual characteristics and the GDP growth rate refer to the first year of the two-year period used to measure overall security and its dimensions.

Among institutional characteristics, we are particularly interested in the effects associated with the employment protection legislation (EPL), and expenditures on active labour market policies (ALMP). Our aim is not to conduct a policy-evaluation exercise, because we do not have the necessary information at the individual level. Rather, we want to check whether, after controlling for country fixed-effects, macroeconomic conditions and various individual characteristics, aggregate EPL indicators and ALMP expenditures retain some explanatory power of individuals' employment and income security. Given the asymmetry between the regulation of permanent and temporary contracts, and the consequent emergency of a dual labour market in most of the European countries, the effect of the two regulations cannot be analysed in isolation (OECD 2013). Therefore, we include both OECD indicators of the strictness of regulation on regular and temporary contracts (EPL-P and EPL-T). While EPL-P measures the strictness of employment protection against individual dismissals, EPL-T measures the strictness of regulation on the use of fixed-term and temporary work agency contracts. Therefore, a higher value of EPL-P indicates a greater difficulty for firms in firing workers, whereas a higher value of EPL-T indicates a greater

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[19] The empirical analysis about employment security is different with respect to the analysis in Berloffa et al. (2016) because we do not include UK in the present work, as explained in footnote 4.
[20] EU-SILC data do not provide information about the individuals' employment status for the period between school exit and the observation period. The information would be important because prior employment experience might matter to explain the labour market outcomes that we observe. However, we proxy prior work experience with the difference between individual's age and the age at which he/she began his/her first regular job.

difficulty for firms in hiring workers on fixed-term contracts or through temporary work agency (TWA) contracts.[21]

For labour market policies, we consider annual expenditures on active policies per unemployed (Eurostat LMP database[22]), as a share of per-capita GDP.[23] This is an indicator of a country's overall effort to help individuals entering or re-entering employment (training, employment incentives, direct job creation, start-up incentives, etc.). We would expect that the larger the amount of resources devoted to this type of measures, the more likely individuals to move quickly across jobs, and therefore the more likely to be secure. Given that we expect these policies to have different effects on various demographic groups, as for the EPL indicators, we interact them with educational and sex dummies. All EPL indicators and ALMP expenditures refer to the year before the two-year evaluation period.

4.2 Probit model estimates: marginal effects

Table 5 shows that females have less chances than males to achieve employment security, but no significant gender differences are estimated for income and overall security. Living in couple substantially reduces women's probability of being both employment- and income-secure (and overall security). In contrast, males in couple have a higher probability of having a stable employment pathway.

Education plays a crucial role for the achievement of both employment and income security. Attaining a high-school diploma raises the employment probability by about 37pp, whereas attaining a university degree increases the probability of being employment-secure by about 70pp. Medium and high educational levels have similar marginal effects on income-security (each degree increases the probability of being income-secure by about 60pp). Prior potential work experience raises both employment and income security.

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[21] 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).

[22] ALMPs include categories from 2 to 7 (training, job rotation and job sharing, employment incentives, supported employment and rehabilitation, direct job creation, start-up incentives) while PLMPs account for categories 8 and 9 (out-of-work income maintenance and support, early retirement).
For details see: http://ec.europa.eu/eurostat/cache/metadata/en/lmp_esms.htm

[23] We do not express expenditures as a share of the GDP because this share would be too much influenced by the different ways in which European countries have been hit by the recent economic downturn.

A more stringent regulation on fixed-term contracts (i.e. a higher EPL-T index) raises youth employment and income security, whatever the educational level. However, the extent of the effect is larger for low-educated individuals. Increasing the strictness of the regulation on fixed-term contracts raises substantially females' chances of being both employment- and income-secure. This evidence may be related to the gender and educational segmentation in 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. Highly educated individuals have a significant lower probability of achieving security in presence of more stringent rules for firing and dismissals. Stricter regulations on regular contracts reduce income-security for both high-school and university graduates. A higher EPL-P also reduces females' probability of achieving income security (and overall security).

Also ALMP expenditures have differentiated effects across educational attainments. Higher expenditures on ALMPs are associated with a higher probability of being employment-secure for low-educated individuals and a lower probability of employment-security for more educated young people. In terms of income security, higher expenditures on ALMPs reduce youth probability of being income-secure (and overall security). Finally, higher expenditures on ALMPs raise females' probability of achieving employment security.

Table 5. Probit model estimates: selected marginal effects

	Employment security		Income security		Security	
	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.
Female	-0.29***	0.06	0.03	0.07	0.05	0.06
Female in couple	-0.18***	0.02	-0.20***	0.02	-0.19***	0.02
Male in couple	0.06***	0.03	-0.01	0.02	0.00	0.02
Living with family	-0.03*	0.02	-0.05**	0.02	-0.04**	0.02
Medium education	0.37***	0.11	0.55***	0.13	0.57***	0.13
High education	0.74***	0.12	0.63***	0.14	0.67***	0.14
Age	0.01*	0.01	0.02***	0.01	0.02***	0.01
Potential experience	0.02***	0.00	0.01***	0.00	0.01***	0.00
EPL-T	0.14***	0.05	0.15***	0.05	0.16***	0.05
EPL-T * medium education	-0.06**	0.03	-0.11**	0.03	-0.12***	0.03
EPL-T * high education	-0.06**	0.03	-0.08**	0.03	-0.09***	0.03
EPL-T * female	0.08***	0.01	0.05***	0.02	0.05***	0.01
EPL-P	0.00	0.16	0.07	0.17	0.14	0.16
EPL-P * medium education	0.03	0.03	-0.07**	0.03	-0.07**	0.03
EPL-P * high education	-0.08**	0.03	-0.10***	0.04	-0.11***	0.03
EPL-P * female	0.01	0.02	-0.08***	0.02	-0.07***	0.02
ALMPs	0.99***	0.33	-0.66*	0.38	-0.68*	0.38

ALMPs * medium education	-1.23***	0.24	0.06	0.29	0.08	0.29
ALMPs * high education	-1.26***	0.26	0.17	0.29	0.11	0.30
ALMPs * female	0.30**	0.13	0.11	0.13	0.07	0.13

Notes: Low education groups include ISCED levels from 0 to 2 - lower secondary education at most (reference category); Medium education groups ISCED levels 3 and 4 - upper secondary education at most; High education groups ISCED levels 5 and 6 - tertiary education. Other variables included in the regressions are: GDP growth rate, and country and year fixed effects. ***$p<0.01$,**$p<0.05$,*$p<0.10$.

4.3 Multinomial logit model estimates

Table 6 and 7 show the predicted probabilities and some selected marginal effects for employment security and income security, respectively, and different pathways of employment-insecure and income-insecure individuals.

In line with probit estimates, females have a significant lower probability of achieving employment security, but an equal probability of being income-secure and secure than males. However, among the employment-insecure group, they are more likely to be inactive, in&out, and to return to education. These effects are confirmed in the multinomial logit for income security, but in this case we find also that females are less likely to be always employed. This means that females have more fragmented pathways than males and that, if we exclude from the analysis all individuals who are not prevalently or always employed, the probability of being income-secure for females would increase more than what we would observe for males. Therefore, conditionally on being continuously employed, females would have a higher probability of having an income above the poverty line.

The picture is different for females in couple. Besides having much lower chances of being employment-secure (much less than females not in couple), they are also considerably more likely to have a fragmented career pathway (being prevalently employed and insecure) or to be out of paid employment (prevalently unemployed and inactive). They are also less likely to be income-secure, as we have seen from the probit estimates. Among the income-insecure group, besides being more likely to be prevalently inactive, they are also more likely to be prevalently employed (but with long unemployment spells, or short employment spells, resulting in an annual income below the poverty line), and prevalently unemployed. In other words, females in couple are more employment-insecure and income-insecure, not only because they participate less to the labour market, but also because they encounter more difficulties in entering employment, and remaining in it in a sufficiently continuous way.

In line with probit estimates, males in couple are more likely to be employment-secure, but not income-secure. The reason is that they have a higher probability of being always employed but with a low annual income.

As we have seen above, education is remarkably important to achieve employment and income security. Attaining a high-school diploma and a university degree help in a similar way to avoid long spells of unemployment (lower probability of being prevalently unemployed or prevalently employed but employment-insecure). Completing secondary education helps relatively more in avoiding inactivity or a continuous employment pathway with a very low wage, while tertiary education is more important in avoiding moving in&out from employment.

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.

Regarding the mix of EPL and ALMP expenditures, some interesting results emerge. 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 short employment spells or long unemployment spells from one employment spell to the other (i.e. being prevalently employed but employment-insecure). A higher EPL-T is also associated with a higher probability of being income-secure, especially for low-educated and females. The main channel is through a reduction in the likelihood of being prevalently employed but insecure (i.e. experiencing long employment spells, but also long unemployment spells in between). It has also a more modest effect on (reducing) the probability of being prevalently unemployed. 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[24], with more relevant effects 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 and employment-insecure, and with some adverse effects for highly educated individuals who have to cope with a lower probability of being employment-secure, and a higher probability of being prevalently unemployed. In other words, where the regulation of individual dismissals is more restrictive, the relative advantage of highly educated workers (compared to individuals with medium or low education) in terms of employment security is reduced. A possible explanation is that the higher is the individual wage, the higher is the expected

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[24]Notice, however, that this does not necessary means that they stay in the same job. Berloffa 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.

(discounted) total labour cost that firms face when firing the worker (i.e. not paying his/her wage any longer) is more difficult. Stricter regulations on permanent contracts (high EPL-P) reduce also reduces income-security for all individuals except the low-educated ones, by increasing the probability of being continuously employed but with a low income.

ALMP expenditures have differentiated effects 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 compensated by a higher probability of being employment-secure for low-educated young people, and by a higher probability of returning to education for high-school and university graduates. In terms of income security, higher expenditures on ALMPs reduce youth probability of being income-secure, especially for low-educated individuals. This lower probability of being income-secure is partly compensated by a higher probability of being income-insecure but almost always in employment. Among the income-insecure group, higher ALMP expenditures are associated with a lower probability of being in&out (with a larger effect on low-educated people) and a lower probability of being continuously inactive, but only for individuals with a low educational level. For medium- and highly educated young people, higher ALMP expenditures raise their likelihood of returning to education.

To summarise, 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 educated individuals, but it also generates some problems in terms of low earnings possibilities 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.

In table 8 we consider the combined condition of employment and income security. As can be noted, results are very similar to those obtained for income insecurity, confirming that this is the dimension driving the overall security.

Table 6. Multinomial logit estimates for employment security: predicted probabilities and selected marginal effects

	Employment-secure		Employment-insecure								Return to education	
			Prevalently in employment		In&out		Prevalently in unemployment		Prevalently in inactivity			
	Pr.	Std. Err.	Pr.	Std. Err.	Pr.	Std. Err.	Pr.	Std. Err.	Pr.	Std. Err.	Pr.	Std. Err.
Predicted probability	0.75***	0.01	0.09***	0.004	0.06***	0.004	0.03***	0.003	0.05***	0.003	0.02***	0..002
Marginal effects:	dy/dx	Std. Err.	dy/dx	Std. Err.	dy/dx	Std. Err.	dy/dx	Std. Err.	dy/dx	Std. Err.	dy/dx	Std. Err.
Female	-0.22***	0.06	0.05	0.04	0.03	0.03	0.03	0.03	0.06***	0.02	0.05***	0.02
Female in couple	-0.14***	0.02	0.08***	0.01	0.00	0.01	0.03***	0.01	0.06***	0.01	-0.02***	0.01
Male in couple	0.06**	0.02	0.00	0.02	-0.01	0.01	-0.02	0.01	-0.01	0.01	-0.01	0.01
Living with family	-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	0.29***	0.10	-0.11*	0.07	-0.01	0.05	-0.14***	0.04	-0.06**	0.03	0.03	0.02
High education	0.69***	0.12	-0.22***	0.07	-0.12**	0.06	-0.25***	0.05	-0.09***	0.03	-0.01	0.03
Age	0.01	0.01	0.00	0.00	0.00*	0.00	0.00	0.00	0.00	0.00	-0.01***	0.00
Potential experience	0.02***	0.00	0.00	0.00	0.00	0.00	-0.01***	0.00	0.00	0.00	-0.01***	0.00
EPL-T	0.13***	0.05	-0.12***	0.03	0.01	0.03	-0.04**	0.02	0.02	0.01	0.00	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	0.00
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	0.08	0.18	-0.04	0.10	-0.19*	0.12	0.11	0.09	-0.03	0.03	0.08	0.09
EPL-P * medium education	0.03	0.03	-0.02	0.02	-0.01	0.01	0.01	0.01	0.00	0.01	-0.01**	0.01
EPL-P * high education	-0.08***	0.03	0.03	0.02	0.01	0.02	0.03**	0.01	0.01	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	-0.01	0.01	0.00	0.00
ALMPs	0.89***	0.34	0.09	0.22	-0.30*	0.16	-0.56***	0.15	-0.05	0.11	-0.06	0.07
ALMPs * medium education	-1.06***	0.27	0.26	0.17	0.10	0.12	0.34***	0.12	0.16**	0.08	0.20***	0.05
ALMPs * high education	-1.22***	0.29	0.37**	0.18	0.14	0.13	0.34**	0.15	0.16*	0.09	0.21***	0.06
ALMPs * female	0.08	0.15	0.03	0.10	0.02	0.07	0.05	0.08	-0.11*	0.06	-0.07**	0.03

Notes: See table 5. DK is not included in the analysis because of the low number of cases in some EST types. ***p<0.01,**p<0.05,*p<0.10.

Table 7. Multinomial logit estimates for income security: predicted probabilities and selected marginal effects

| | Income-secure | | Income-insecure | | | | | | | | | | Return to education | |
| | | | Almost always in employment | | Prevalently in employment | | In&out | | Prevalently in unemployment | | Prevalently in inactivity | | | |
	Pr.	Std. Err.	Pr.	Std. Err.	Pr.	Std. Err.	Pr.	Std. Err.	Pr.	Std. Err.	Pr.	Std. Err.	Pr.	Std. Err.
Predicted probability	0.47***	0.01	0.24***	0.01	0.13***	0.004	0.06***	0.004	0.03***	0.002	0.05***	0.003	0.02***	0.002
Marginal effects:	dy/dx	Std. Err.	dy/dx	Std. Err.	dy/dx	Std. Err.	dy/dx	Std. Err.	dy/dx	Std. Err.	dy/dx	Std. Err.	dy/dx	Std. Err.
Female	0.10	0.07	-0.29***	0.06	0.00	0.05	0.03	0.03	0.06***	0.02	0.05*	0.03	0.05***	0.02
Female in couple	-0.19***	0.02	0.01	0.02	0.12***	0.02	0.03***	0.01	0.06***	0.01	-0.01	0.01	-0.02***	0.01
Male in couple	0.02	0.03	0.04**	0.02	0.00	0.02	-0.02*	0.01	-0.02	0.01	0.00	0.01	-0.01	0.01
Living with family	-0.05***	0.02	0.01	0.02	0.03***	0.01	0.03***	0.01	0.00	0.01	-0.02***	0.01	0.00	0.00
Medium education	0.49***	0.16	-0.21	0.14	-0.11	0.08	-0.14***	0.04	-0.06**	0.03	-0.01	0.05	0.03	0.02
High education	0.61***	0.16	0.00	0.15	-0.14	0.09	-0.25	0.05	-0.08*	0.03	-0.12**	0.06	-0.01	0.03
Age	0.01**	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	-0.01**	0.00	-0.01***	0.00
Potential experience	0.01***	0.00	0.01	0.00	0.00	0.00	-0.01***	0.00	0.00	0.00	0.00*	0.00	-0.01***	0.00
EPL-T	0.16***	0.06	-0.02	0.05	-0.12***	0.04	-0.05**	0.02	0.02	0.01	0.02	0.02	-0.01	0.01
EPL-T * medium education	-0.11***	0.04	0.04	0.03	0.05***	0.02	0.01	0.01	0.00	0.01	0.00	0.01	0.00	0.01
EPL-T * high education	-0.09***	0.04	0.03	0.03	0.02	0.02	0.02*	0.01	0.00	0.01	0.02*	0.01	0.01	0.01
EPL-T * female	0.04**	0.02	0.03**	0.01	-0.02*	0.01	-0.01*	0.01	-0.01	0.01	-0.01	0.01	-0.02***	0.00
EPL-P	0.12	0.19	-0.16	0.16	0.02	0.13	0.12	0.09	-0.02	0.03	-0.18	0.13	0.09	0.09
EPL-P * medium education	-0.09**	0.04	0.11***	0.04	-0.01	0.02	0.01	0.01	0.00	0.01	-0.01	0.01	-0.01**	0.01
EPL-P * high education	-0.13***	0.04	0.07*	0.04	0.01	0.02	0.03**	0.01	0.01	0.01	0.02	0.02	0.00	0.01
EPL-P * female	-0.08***	0.02	0.07***	0.02	0.02	0.02	0.00	0.01	-0.01	0.01	-0.01	0.01	0.00	0.00
ALMPs	-1.34***	0.49	1.75***	0.39	0.35	0.27	-0.45***	0.15	-0.01	0.11	-0.27*	0.16	-0.02	0.07
ALMPs * medium education	0.82**	0.41	-1.26***	0.32	-0.12	0.21	0.23**	0.12	0.11	0.08	0.06	0.12	0.17***	0.06
ALMPs * high education	0.89**	0.42	-1.41***	0.32	-0.11	0.22	0.26*	0.15	0.13	0.09	0.05	0.13	0.19***	0.06
ALMPs * female	-0.08	0.16	0.15	0.13	0.03	0.12	0.07	0.08	-0.12*	0.06	0.02	0.07	-0.07**	0.04

Notes: See table 6. ***p<0.01,**p<0.05,*p<0.10.

Table 8. Multinomial logit estimates for security: predicted probabilities and selected marginal effects

| | Employment- and income-secure | | Employment- and income-insecure | | | | | | | | | | Return to education | |
| | | | Almost always in employment | | Prevalently in employment | | In&out | | Prevalently in unemployment | | Prevalently in inactivity | | | |
	Pr.	Std. Err.	Pr.	Std. Err.	Pr.	Std. Err.	Pr.	Std. Err.	Pr.	Std. Err.	Pr.	Std. Err.	Pr.	Std. Err.
Predicted probability	0.44***	0.01	0.24***	0.01	0.15***	0.004	0.06 ***	0.003	0.03 ***	0.002	0.06***	0.003	0.02***	0.002
Marginal effects:	dy/dx	Std. Err.	dy/dx	Std. Err.	dy/dx	Std. Err.	dy/dx	Std. Err.	dy/dx	Std. Err.	dy/dx	Std. Err.	dy/dx	Std. Err.
Female	0.10	0.07	-0.29***	0.06	0.01	0.05	0.04	0.03	0.07***	0.02	0.03	0.03	0.05***	0.02
Female in couple	-0.18***	0.02	0.01	0.02	0.12***	0.02	0.03***	0.01	0.06***	0.01	-0.01	0.01	-0.02***	0.01
Male in couple	0.03	0.03	0.04	0.02	-0.01	0.02	-0.02	0.01	-0.01	0.01	-0.01	0.01	-0.01	0.01
Living with family	-0.05**	0.02	0.01	0.02	0.03**	0.02	0.03***	0.01	0.00	0.01	-0.03***	0.01	0.00	0.00
Medium education	0.53***	0.16	-0.21	0.14	-0.13	0.09	-0.14***	0.04	-0.06**	0.03	-0.01	0.06	0.03	0.02
High education	0.67***	0.17	0.01	0.15	-0.19**	0.10	-0.26***	0.05	-0.09***	0.03	-0.13**	0.06	-0.01	0.03
Age	0.01**	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	-0.01*	0.00	-0.01***	0.00
Potential experience	0.01***	0.00	0.01***	0.00	0.00	0.00	-0.01***	0.00	0.00	0.00	0.00	0.00	-0.01***	0.00
EPL-T	0.18***	0.06	-0.02	0.05	-0.14***	0.04	-0.05**	0.02	0.02	0.01	0.02	0.03	0.00	0.01
EPL-T * medium education	-0.12***	0.04	0.04	0.03	0.06***	0.02	0.01	0.01	0.00	0.01	0.00	0.01	0.00	0.01
EPL-T * high education	-0.10***	0.04	0.03	0.03	0.02	0.02	0.02**	0.01	0.00	0.01	0.02*	0.01	0.01	0.01
EPL-T * female	0.03**	0.02	0.03**	0.01	-0.02*	0.01	-0.01*	0.01	-0.01	0.01	-0.01	0.01	-0.01***	0.00
EPL-P	0.19	0.18	-0.15	0.16	0.01	0.14	0.13	0.09	-0.03	0.03	-0.24*	0.13	0.09	0.09
EPL-P * medium education	-0.09**	0.04	0.11***	0.04	-0.01	0.02	0.01	0.01	0.00	0.01	0.00	0.02	-0.01**	0.01
EPL-P * high education	-0.14***	0.04	0.07	0.04	0.01	0.02	0.03**	0.02	0.01	0.01	0.02	0.02	0.00	0.01
EPL-P * female	-0.08***	0.02	0.07***	0.02	0.02	0.02	0.00	0.01	-0.01	0.01	-0.01	0.01	0.00	0.00
ALMPs	-1.38***	0.49	1.76***	0.39	0.42	0.29	-0.50***	0.15	0.00	0.12	-0.28*	0.17	-0.02	0.07
ALMPs * medium education	0.80**	0.42	-1.26***	0.32	-0.12	0.23	0.26**	0.12	0.12	0.08	0.04	0.13	0.17***	0.06
ALMPs * high education	0.78*	0.43	-1.43***	0.32	-0.02	0.24	0.27*	0.15	0.12	0.09	0.09	0.15	0.18***	0.06
ALMPs * female	-0.08	0.16	0.16	0.13	0.02	0.13	0.05	0.09	-0.11*	0.07	0.03	0.07	-0.07*	0.04

Notes: See table 6. ***p<0.01,**p<0.05,*p<0.10.

Conclusions

[To be completed]

Females have less chances than males 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. No significant gender differences are estimated for income and overall security. However, if women are able to follow a stable employment trajectory, they have more chances than men to have a labour income above the poverty line. Living in couple substantially reduces women's probability of being both employment- and income-secure (and overall security), not only because they participate less to the labour market, but also because they encounter more difficulties in entering employment, and remaining in it in a sufficiently continuous way.

Education plays a crucial role in ensuring good labour market outcomes. Attaining a high-school diploma and a university degree help in a similar way to avoid long spells of unemployment. Completing secondary education helps relatively more in avoiding inactivity or a continuous employment pathway with a very low wage, while tertiary education is more important in avoiding moving in&out from employment.

The regulation of temporary contracts mainly affects the type of employment trajectory followed by individuals, whereas the EPL of regular contracts appears to have some additional effects on income security. Stricter rules on the use of temporary contracts raises youth employment and income security. The extent of the effect is larger for low-educated individuals and for women. A more stringent regulation of individual dismissals generates some difficulties by reducing the chances of being secure not only for university graduates and females, but also for high-school graduates. For the latter two groups, stricter rules on individual dismissals seem to have adverse effects on income security.

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