



Gender inequalities in the school-to-work transition in Europe

Short statistical report No.4

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Short Statistical Report No. 4

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Prepared for European Commission Directorate General- Justice and Fundamental Rights
JUST/2011/GEND/PR/1081/A4

Preface

The transition from school to work is a crucial phase in the lives of young people that has lasting effects on their entire life courses. In recent years, labour market uncertainty and comparatively high unemployment rates have been major challenges for young people leaving the educational system. Another recent trend has been the increase in women's educational attainment, with recent female labour market entrants being at parity or even exceeding those of their male counterparts in Europe.

Our findings reveal that there is substantial variation in the speed of entering a first job across countries. In Southern and Eastern European countries, the speed of transition is substantially slower. Men and women have a similar speed of transition to their first job in the first few months after leaving education, but later on women appear to be disadvantaged. We find that higher education and workplace-based vocational training also increase the speed of transition, however men benefit more strongly than women from these factors. A stricter employment protection legislation results in a slower transition to the first job.

This short statistical report is part of a series of reports on gender equality in the work force and reconciliation of work, family and private life. These reports have been commissioned by the Justice Directorate General of the European Commission. The study was jointly undertaken by RAND Europe and the University of Groningen. These reports should be of interest to policy makers and academics with an interest in improving gender equality in the work force and improving the compatibility of having a career in combination with a family and private life.

RAND Europe is an independent not-for-profit policy research organisation that aims to improve policy and decision-making in the public interest, through research and analysis. The research group led by Professor Melinda Mills at the University of Groningen focuses on research in the area of cross-national comparative research, gender equality, work-family reconciliation and advanced statistical analyses.

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Summary

The school-to-work transition is a crucial life stage for young people, and research has often shown that this stage has important effects on their entire life courses. In recent years, young people willing to enter the labour market have been challenged by increasing uncertainty and comparatively high unemployment. These labour market trends have been attributed to several structural changes, including globalisation, rise in international competition, technological change and the recent economic crisis.

At the same time, the structure of labour supply has changed. Tertiary education in EU Member States has substantially expanded and the educational attainment of recent female graduates is now at parity or even exceeds that of their male counterparts. However, research has also demonstrated that even with considerable gains in education, women continue to have unequal labour market outcomes. Isolating gender differences in the transition from school to work and examining why these differences may emerge, has been largely ignored until now. Our report uses directly comparable data across the EU to examine whether there is a gendered transition from school to work, which can provide evidence to allow nations to reform their social welfare systems in a more tailored way by learning from each other and identifying policies and institutional systems that work the best.

For our empirical analyses, we draw on the EU Labour Force Survey 2009 ad hoc module 2009 ‘Entry of Young People into the Labour Market’, which focuses on individuals aged 15–34 years living in 27 EU Member States plus Iceland and Norway. We model the duration of the transition from leaving the education system for the last time to the first job held for more than three months. We focused on young people who left education between 2004 and 2009. Among the predictors taken into account were sex, age, educational level, educational field, vocational education and co-residing children. Furthermore, we accounted for several time-varying country-level indicators, such as employment protection legislation (as obtained from the OECD), GDP per capita and the unemployment rate (source: Eurostat).

Our analyses revealed that there is considerable cross-national variation in the speed of entering a first job after leaving formal education across the 29 countries. Youth in Southern and Eastern European countries have substantially longer transition periods. Countries with the shortest job search periods for youth include the Netherlands, Iceland, Denmark, Norway and the United Kingdom.

Men and women have a similar speed of transition to their first job only in the first few months after leaving education. After this time, the differences between men and women continue to diverge, with men having a higher likelihood to find a first job than women across all time periods. Overall, in comparison to men, women have a significantly slower transition to their first job.

Education has a protective effect on youth. Graduates with the highest level of education make a considerably faster transition to their first job, followed by those with medium levels of education and those with lower secondary levels of education, who make markedly slower transitions.

Women who have the highest level of education have a faster transition to their first job than those in low or medium levels of education. In comparison to men however, both higher and medium and low-educated women fare slightly worse.

Women are underrepresented in the general, engineering, manufacturing and construction, agriculture and to a lesser extent in health and welfare fields. Conversely, women are overrepresented in all other types of education, and particularly teaching and education, humanities and arts, social sciences, business and law, sciences and services.

There are no significant differences in the speed of job entry between women who studied within more female-typical fields of education with general education, and arts, and health and welfare. When women study male-typical fields, they have significantly slower entry into the labour market.

Youth with vocational training that is at least partially workplace-based make a more rapid transition into starting their first job and particularly those who have no vocational training have slower transitions to first jobs. The positive impact of workplace-based vocational training is largely driven by young men.

Although we do not directly model causality in this report, men who have co-resident children make more rapid transitions into their first job, while the exact opposite is true for women. Compared to fathers, mothers are significantly less likely to have made a rapid transition to their first job. When we compare women with and without children, we also see that those without children have markedly faster transitions. This strong effect demonstrates that work-life conflict already penetrates the early labour market experiences of young women.

Higher levels of employment protection legislation restrictions (either temporary or permanent contracts) result in a significantly slower transition to first job. A stricter regulation of temporary contracts inhibits youth to enter the labour market more rapidly.

In terms of policy recommendations, we point to the great importance of field of education for the gender differences in the school-to-work transition, to the importance of formal childcare provision for the gendered effect of having children on the school-to-work transition, the detrimental effects of strict employment protection legislation, and the beneficial effect of workplace-based vocational training for a speedy school-to-work transition.

Abbreviations

<i>EU 27 Member States</i>	Austria	AT
	Belgium	BE
	Bulgaria	BG
	Czech Republic	CZ
	Denmark	DK
	Germany	DE
	Estonia	EE
	Ireland	IE
	Greece	EL
	Spain	ES
	France	FR
	Italy	IT
	Cyprus	CY
	Latvia	LV
	Lithuania	LT
	Luxembourg	LU
	Hungary	HU
	Malta	MT
	Netherlands	NL
	Poland	PL
	Portugal	PT
	Romania	RO
	Slovenia	SI
	Slovakia	SK
	Finland	FI

RAND Europe

	Sweden	SE
	United Kingdom	UK
<i>Candidate country</i>	Iceland	IS
<i>Third country</i>	Norway	NO

1. Introduction

The transition from school to work is a crucial life course stage that impacts the remainder of youth's lives. In recent years, the transition from school to work in European countries has become increasingly characterised by labour market uncertainty, difficulties in finding a suitable first job and unemployment (Kogan & Unt 2005; Mills & Blossfeld 2005; Müller et al. 2002). This is attributed to several interrelated structural changes, including globalisation, rise in international competition and skill-biased technological transformations and the recent economic crisis (Acemoglu 2002; Barbieri 2009; Mills et al. 2008).

These structural changes have not only changed the skill composition of what is required in the labour market, but also translated into an increasing number of youth with educational credentials that do not meet the demands of the labour market (Di Pietro 2002, McGuinness 2006). In addition to the rise in temporary contracts for youth, there is an increase in economic uncertainty in terms of higher risks of being unable to find a job, unemployment and low wages, particularly for the lower educated (DiPrete et al. 2006, Mills et al. 2005, Shavit & Müller 1998).

The increasing difficulties for youth in the labour market recently prompted the European Commission to develop measures to counter youth unemployment, including the 'Youth Opportunities Initiative' (European Commission 2011b), which built upon the 'Youth on the Move' initiative launched as part of the Europe 2020 Strategy (European Commission 2010). The 'Youth Opportunities Initiative' called on Member States to 'develop and implement comprehensive initiatives for youth employment, education and skills, and to develop youth jobs plans within their national reform programmes' (European Commission 2012: 1).¹

A parallel trend has been the expansion in tertiary education across EU Member States and the fact that women's level of educational attainment is now at parity with or even exceeds men's in some countries (OECD 2011a). Until now, however, the majority of research and subsequent policy targets are based on general trends or initiatives that often treat young men and women equally. Yet we know that young men and women face different challenges when entering the labour market due to their educational background, but also work-life reconciliation. Research has also demonstrated that even with considerable

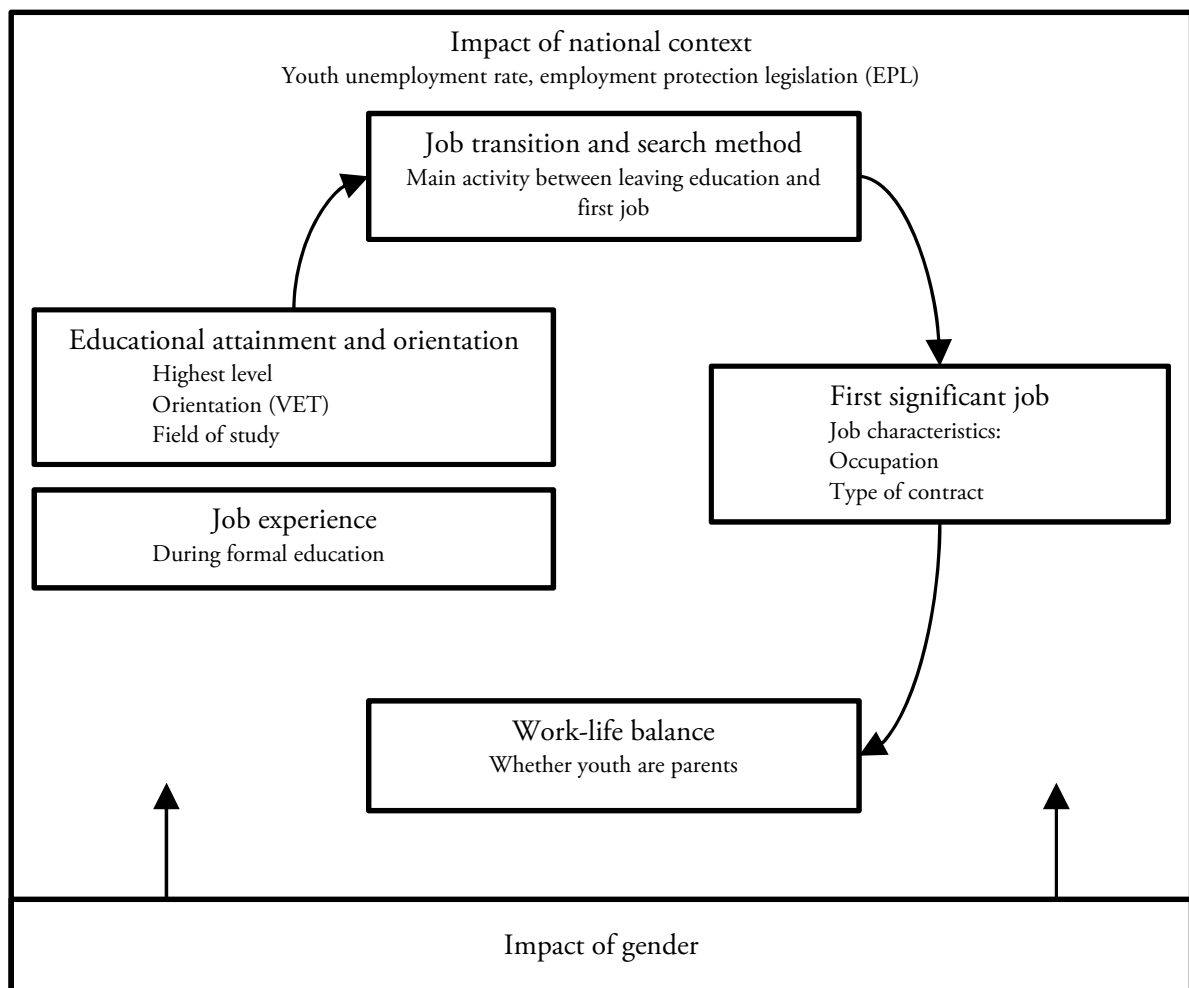
¹ Within this initiative, a pilot action was proposed to focus on eight Member States with some of the highest levels of youth unemployment at 30 per cent or over at the end of 2011, including: Greece, Ireland, Italy, Latvia, Lithuania, Portugal, Slovakia and Spain. Extra funds were provided to support job opportunities for youth and to facilitate SME's (small and medium sized enterprises) access to finance, since SME's are considered a major source of job creation. Examples of these pilots include more targeted spending on modernising vocational and educational training (VET) in Latvia, funding an employability plan in Sicily or training for early school leavers in Ireland.

gains in education, women continue to have unequal labour market outcomes (Charles and Bradley 2002; Reimer and Steinmetz 2009; Van de Werfhorst 2004). Isolating gender differences in the transition from school to work and examining why these differences may emerge, has been largely ignored until now. This report uses directly comparable data across the EU to examine whether there is a gendered transition from school to work, which can provide evidence to allow nations to reform their social welfare systems in a more tailored way by learning from each other and identifying policies and institutional systems that work the best. The report draws on the EU Labour Force Survey, Ad Hoc Module 2009 'Entry of Young People into the Labour Market', which focuses on individuals aged 15–34 years living in 27 EU Member states, and the candidate country of Iceland and third country Norway.

2. Defining the transition from school to work

The transition from school to work is examined by looking at the duration or the speed with which youth make the transition from leaving the system of formal education to entering a job that lasted longer than three months. Figure 1 provides an overview of the central factors that impact the transition from school to work and potential consequences for the work-life balance and transition to adulthood.

Figure 1: The transition from school to work and consequences for work-life balance



Note: Figure based on LFS-AHM 2009 and adapted from EU-LFS AHM 2009 Evaluation Report (2012).

Figure 1 illustrates that the transition from school to work is a multi-stage process that begins during the phase of education, where youths achieve a certain level of education and select a particular orientation

and field of study. During this period they may also acquire job experience, such as an internship as part of vocational training. The nature of this educational phase in turn impacts the actual length and type of the job transition, in addition to the search method. This entire process culminates in the transition to a first job, which in this report is examined particularly in relation to the type of first occupation and type of contract. The entire process of the transition from school to work is likewise influenced by work-life reconciliation and as discussed in detail shortly, we anticipate that particularly women will be impacted by parenthood. The figure also shows that this pivotal transition is also embedded in a particular national context. When engaging in cross-national comparative analyses, it is essential to consider the enabling or constraining structural factors (such as the economic situation or level of employment protection legislation) that aid or exacerbate a smooth transition into the labour market.

Box 1: The youth examined in this report and data quality

The 2009 EU-Labour Force Survey (European Commission 2011a) contains 1,146,145 respondents from around 400,000 households located in the 27 EU Member States plus EFTA countries Switzerland, Norway and Iceland. This report uses the 2009 Ad Hoc Module (AHM), which consists of information from 321,275 respondents between the ages of 15 to 34. Due to concerns regarding the reliability of reporting, we reduce the sample to only examine youth that have left the educational system from 2004 and later. It is likewise important to note that many respondents between the age of 15 and 34 were still in the education system at the time of the survey, making them unable to answer a considerable number of the AHM questions. Also due to data concerns (EU-LFS AHM 2009 Evaluation Report 2012), Switzerland has been removed from the analysis, leaving 29 countries. Although still included in this analysis, the results for Germany should be interpreted with care. As described in Wingerter (2011), there appear to be problems in relation to the respondent’s interpretation of a ‘significant job’ and the high overlap between work and education.

Beyond the age restriction in the AHM, different questions filtered for various aspects which also influenced the sample sizes for the analysis. The most prominent filters impacting our analyses are whether respondents are: still in education, left the educational system without any education at all, did not answer when they left education for the last time, and never had a job of more than three months. Due to these filters and the missing values, the sample size in the analysis is further reduced, which is described in Table 1. Appendix A.1. also provides a detailed description of all variables used in this report.

Table 1: Sample sizes of youth examined in this report

Full 2009 LFS sample	1,146,145
15 to 34 years old (AHM sample)	321,275
After removing the Swiss sample	309,515
	197,564
After removing those who left education before 2004	61,114
After removing those still in education at time of data collection	47,121
Have made a transition to a job of more than three months	

Source: EU-LFS AHM 2009, own calculations.

An essential point to note is that within this report we examine not only those who have successfully made the transition to first job, but due to the use of event history methods and the ability to include what is termed ‘right-censored’ cases (see Box 2 and Appendix A.1.), we also examine NEETs (Not in Employment, Education or Training) or in other words, those who have left education and *did not* yet find a job by the time of the survey. For a more detailed discussion of NEETs, refer to Box 4 and Box 5, and see Appendix A.2.2. Our analyses examine all youth from the month that they leave education to either entering a first job or not by the month of the survey (i.e. right-censoring in event history models). In many of the analyses that follow, we therefore compare the early labour market experiences of those who found a first job with those who did not (i.e. NEETs). When examining the impact of education and educational level on the transition to first job, we compare NEETs against those who found a first job. NEETs are not, however, examined when we engage in more detailed analyses that compare first occupational characteristics and outcomes, since for obvious reasons, they do not have a first job (and thus no occupational characteristics, etc. to compare).

3. Gender differentiation and early labour market integration

A central aim of this report is to examine the extent to which there is gender differentiation in early labour market entry across different European countries and why this might exist. Gender differences in the transition from school to work can stem from various reasons, not only in relation to the gender differences in the educational level differences, but also educational field of study, orientation and work experience during education (Buchmann et al. 2008; Smyth & Steinmetz 2008). This section provides a basic description of country and gender differences in the duration from leaving education to obtaining a first job of three months or more.

A description of the measurement and construction of all variables and the statistical methods is provided in detail in the Appendix A.1. As described in Box 2 below, our analytic techniques consist of basic descriptive graphs, graphs of the transition to first job, followed by multilevel regression analysis to demonstrate differences in the manner that youth make their transition to first job.

A summary of the duration of time that it takes in months from leaving education to finding a first job divided by sex and country is shown in Table 3 by the time it takes for 25, 50 and 75 per cent of youth in each country to make the transition. These descriptive results demonstrate that **the time that it takes to make the transition from school to work differs substantially across the 29 countries**. As Table 2 shows, in Greece, for instance, it takes almost two years (20 months) until 50 per cent of men have found a first job and three years (36 months) for 75 per cent of young men. This differs sharply from the Netherlands, where 50 per cent of youth have entered their first job within one month of leaving school and 75 per cent by five months. Countries with the shortest job search periods include the Netherlands, Denmark, United Kingdom, Iceland and Norway.

Box 2: A brief description of the analytical methods and samples used in this report

In this report, we employ several types of analyses, which fall under the umbrella of what is termed survival or event history analysis (Blossfeld et al. 2007; Mills 2011). These techniques are ideal to examine the duration or speed that it takes for youth to make the transition from leaving formal education to their first job. As described previously, they also allow us to compare the characteristics of those who have made the transition to first job with those who have not (i.e. NEETs).

First, we use basic **descriptive techniques** that summarise differences by gender and country. This includes Table 2 and several figures.

Second, we graph so-called ‘failure’ or first job curves, which are **descriptive graphs** that provide a more accessible interpretation and comparison between groups of the speed of transition to first job (see Box 3, e.g. Figure 3).

Third, we estimate **multivariate regression models**, where we control for the influence of country level variation by introducing fixed-effects country dummies. We use monthly data measured for each individual from the month of leaving education to first job (or the end of the survey if no job transition was made), with individual-level variables (e.g. gender, educational field) and cross-country indicators (e.g. GDP, employment protection legislation). A more detailed description of the analytical methods can be found in Appendix A.2. Briefly, the presentation of the regression analysis results includes a series of tables. An additional reason to divide the analyses as described above is due to sample differences.

Table 4 focuses on the **impact of educational level and educational field**, comparing between those who did and did not obtain a first job and including key individual (gender, age) and country-level variables (GDP per capita, country dummies). *Table 5* includes all individuals who make the transition from school to first job and those who do not.

Table 5 then examines the **impact of country-level variables**, namely: GDP per capita, unemployment rate, and EPL for permanent and temporary contracts. Information on certain country-level variables, however, is not available for all countries (BG, CY, IS, LU, MT, RO, SI excluded) with 22 countries examined.

Table 6 focuses on the **impact of parenthood** by examining co-resident children and the interaction with gender, in addition to key controls. Since household information is not available in Nordic countries (DK, FI, IS, NO, SE), this analysis examines 24 countries.

Table 7 then turns to a more detailed examination of those who obtained a first job, focusing on the **first occupation**. Here 29 countries are examined, but due to the focus on occupation, the sample only includes those who made the transition to first job. All models have the basic controls of gender, age, GDP per capita and the country dummies, with an additional focus on VET orientation, whether youth worked during education and contract types. Throughout, various graphs of the interaction effects are also shown to enhance interpretation. More detailed country-level comparisons are shown in Appendix B.

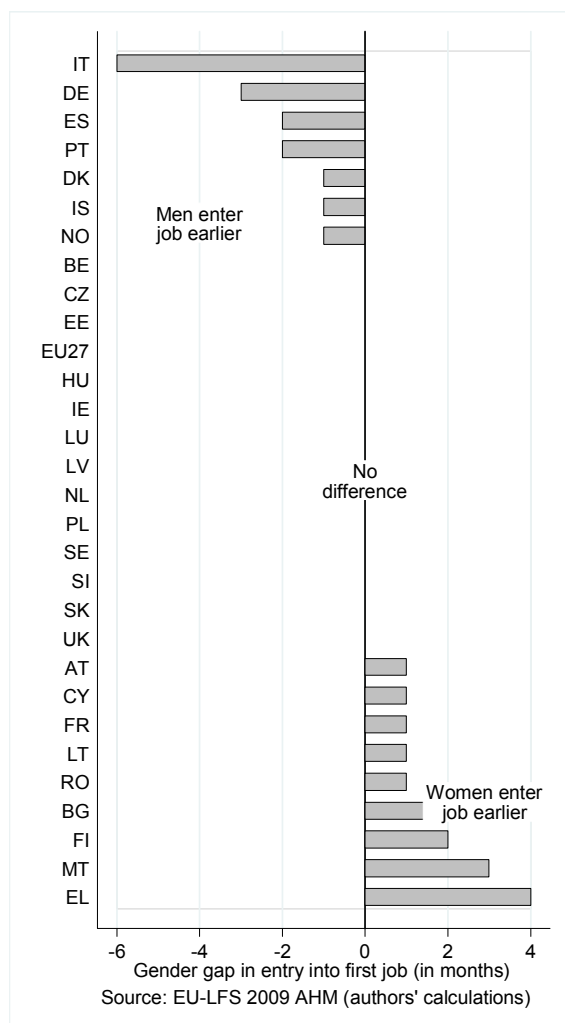
Table 2: Description of duration from school to work by sex, 29 countries

Country	Men				Women			
	N	Time between education and finding a first job (in months)			N	Time between education and finding a first job (in months)		
		25 %	50 %	75 %		25 %	50 %	75 %
AT	1,087	1	4	16	958	1	3	8
BE	667	2	4	16	637	2	4	16
BG	734	3	14	35	668	3	12	37
CY	383	4	17	30	292	1	4	12
CZ	1,120	3	4	28	930	3	4	39
DE	915	1	6	.	878	1	9	.
DK	622	1	3	11	718	2	4	10
EE	366	2	4	18	288	1	4	18
EL	1,251	5	20	36	1,422	4	16	36
ES	2,541	2	13	35	2,391	4	15	38
FI	904	1	5	17	1,017	1	3	15
FR	1,337	2	8	27	1,431	3	7	26
HU	1,695	3	5	28	1,667	2	5	32
IE	2,119	1	4	15	2,415	1	4	13
IS	152	1	2	26	157	1	3	21
IT	3204	4	19	51	2,905	6	25	.
LT	408	2	5	47	372	1	4	41
LU	478	2	4	14	433	3	4	12
LV	318	2	4	22	298	1	4	27
MT	187	2	14	.	196	3	11	.
NL	2,730	1	1	5	2743	1	1	5
NO	752	1	3	23	709	1	4	20
PL	1,483	1	4	20	1,396	1	4	17
PT	924	1	5	18	1,069	1	7	20
RO	1,017	4	15	28	913	4	14	29
SE	1,826	1	4	16	1,853	1	4	15
SI	453	1	4	18	394	1	4	17
SK	671	3	5	17	538	2	5	29
UK	638	1	3	8	572	1	3	9
EU-27	30,078	2	8	31	29,394	2	8	34
ALL	30,982	2	8	31	30,260	2	8	34

Source: EU-LFS AHM 2009, own calculations.

Note: A '.' indicates threshold has not been met of youth that have made the transition to first job in that category, for example 75 per cent of youth did not make that transition. This is related to small sample size and particularly for Germany, data inconsistencies (see Box). These results should be interpreted with care.

Figure 2: Difference in months between when 50 per cent of men versus women enter into first job by country



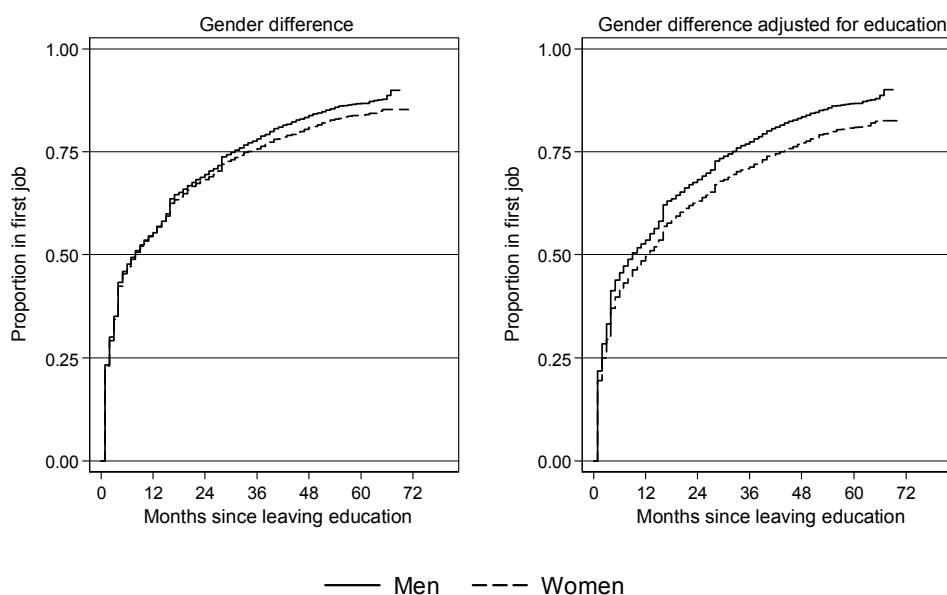
Box 3: A guide to the interpretation of the transition from school to work graphs

Within this report we often graph the duration in months from leaving the formal educational system to entering a first job using event history techniques. The x-axis shows the time in months from leaving the formal educational system to starting the first job. The y-axis can be interpreted as the proportion of youth that have entered their first job by that month. Examining Figure , for instance, we see that in the first month after leaving formal education, most youths do not yet have their first job. As time progresses, however, the proportion goes up and more and more youth start to enter the labour force. Young men are represented by the solid line with young women by the dotted line. We also see that men and women follow the same pattern of job entry for the first few months and then diverge, with a higher proportion of men entering their first job as time progresses.

The graphs model the ‘failure’, which is $(1 - \text{survival})$. Due to the fact that event history statistical methods have their origins in biological and medical research, the term ‘failure’ is often used, which originally referred treatment failure or death of a patient. When these techniques are transposed to the social sciences, the terms are less intuitive and might even be confusing. For this reason, we use the term ‘transition’ to first job and do not use the more standard statistical terms of failure or hazard within this report.

Figure 2 plots the likelihood that youth start their job in each month, showing a line for men and women and controlling for relevant variables (see Box for a guide to interpretation). The figure also shows the differences if we do not control for or take into account any other factors (left panel) or control for differences in educational level (right panel).

Figure 3: Transition from school to work by gender, 29 European countries



Source: EU-LFS AHM 2009 (weighted), authors' calculations

The figure illustrates that in general when we examine all countries, men and women have similar levels of transition to their first job only in the first few months. After this time, the differences between men and women continue to diverge, with men having a higher likelihood of finding a first job than women across all time periods. The results are disaggregated by country and gender by graphing the corresponding curves in Appendix B (Figure 21).

To interpret the gender differences further, it is more useful to examine the more complete multivariate regression analysis. Although the previous graph shows differences between men and women, it does not indicate whether these are statistically significant. To determine this we can turn to the regression results that are shown in Table 4. Once we control for important explanatory variables such as age and the level of education (Model 1), but also educational field and institutional factors in later models (discussed in more detail shortly), the regression estimates show that **in comparison to men, women have a significantly slower transition to their first job**. These estimates do not, however, reveal anything about the reason underpinning these gender differences. It may be that there is a difference in the level of demand for particular skills or degrees in which women are overrepresented (Smyth & Steinmetz 2008). Or, this may reflect that women are restricted by work-life reconciliation issues and difficulties in combining parenthood with employment. A large body of research in the feminist welfare state literature, however, does suggest that women encounter more difficulties in entry and re-entry into the labour market (for a review see Mooi-Reci and Mills 2012). It is essential to not only consider differences in terms of

individual characteristics such as gender or educational level, but when comparing European Member States, to understand job transitions in the context of how key institutional differences, such as the educational system, employment protection legislation or economic climate enable or constrain early labour market careers.

4. National institutional factors influencing early labour market integration

Since this report examines the transition to first job across the EU-27 Member States and Iceland and Norway, it is essential to acknowledge the fact that these transitions occur within very different institutional circumstances. This section briefly discusses the importance of differences in educational systems, youth unemployment, and the economic situation when youth leave education as well as employment protection legislation. The institutional circumstances are discussed in general terms in relation to how they impact both men and women. Considering our focus on gender, however, we underline that most European societies are still characterised by gender stratification in the form of a very high rates of female access to education, but with a high degree of gender segregation in labour market institutions (Charles & Bradley 2002). Here we also draw upon the gendered welfare state literature, which recognises the role of the state in reproducing gender inequalities and promoting certain type of female labour market participation and family models (Fraser 1994; Korpi 2000; Lewis 1992; Orloff 1993; Sainsbury 1999). The key function of the welfare state is the ability to ‘decommodify’ workers or in other words, free them from potential losses related to their job, income or general welfare due to factors such as childbearing and career breaks (Esping-Andersen 1990). This decommodification, however, is highly gendered (Orloff 1993). Women often experience the welfare state or national institutions differently than men and see it as a means to secure commodification. In particular, there is the assumption that men and women have similar (and often unproblematic) relationships between the labour market and the family. Due to the fact that women, and particularly those who are in the ages of 15 to 34, often need to have careers breaks surrounding the birth of children and are primarily responsible for care, they have a distinct relationship with work and face very different challenges (Hook 2010). The welfare state can therefore either alleviate or exacerbate family pressures and work-family conflict, but also enable opportunities for women to enter the labour market.

4.1. The impact of educational systems on transition to first job

When interpreting the results in this report, it is essential to take into the account the divergent context of educational systems across the EU-27 (and Iceland and Norway). Nations differ in both educational systems, but more importantly, how the educational system matches the demands of the labour market (Allmendinger 1989; Arum & Shavit 1995; Maurice et al. 1986; Mills et al. 2006; Shavit & Müller 1998). Cross-national differences in education and training systems may also be partially attributed to the gender-specific outcomes and returns to education that occur. Nations differ in the way they: (1)

differentiate the maximum number of school years attended by all and tracking (stratification); (2) value certificates or ability-based learning (qualificational versus organisational); (3) standardise the quality of education (standardisation); and (4) link education with entry into the labour market. Differences emerge in terms of ‘qualificational’ versus ‘organisational’ space (Maurice & Sellier 1979) and, following Allmendinger (Allmendinger 1989), the degree of educational ‘standardisation’ and ‘stratification’ (see also Bernardi 2003; Blossfeld 1992; Shavit & Müller 1998).

It goes beyond the auspices of this report to categorise and empirically examine the impact of the educational systems across these 29 countries. However, we do anticipate that youth that have a vocational educational orientation (VET) or some type of employment experience will experience more rapid transitions into the labour market. Secondary education can be divided into three broad categories (Mayer 2004). First, there are general or theoretical programs that do not specifically train youth for an occupation or trade. Countries where over 60 per cent of students are enrolled in this type of upper secondary education include: Hungary, the United Kingdom, Greece, Estonia, Iceland, Ireland and Portugal (OECD 2011, 305). The second group is practical on-the-job or pre-vocational or technical training. This provides youths with work experience and prepares them for further vocational or technical education programmes. This type of training is quite specific to certain countries such as Ireland and Italy (OECD 2011, 305). The third category is combined school- and work-based programmes, where less than 75 per cent of the curriculum is school-based and includes apprenticeship programmes or attendance at both educational institutions and workplace-based locations. It prepares youth for direct entry into specific occupations and does not require additional training.

Previous research has shown that students who have the more general or theoretical education have more difficulties upon entry into the labour market, whereas those with some vocational and educational training (VET) that is – at least partially – workplace-based fare considerably better (Biavaschi et al. 2012). This is attributed to the previous labour market experience of the latter group and the fact that they already have a ‘foot in the door’ into the labour market. We do not anticipate any gendered effects of VET and employment during formal education, since the general principle of having work experience should hold equally for both men and women.

4.2. Youth unemployment across Europe 2004–2009 and the economic recession

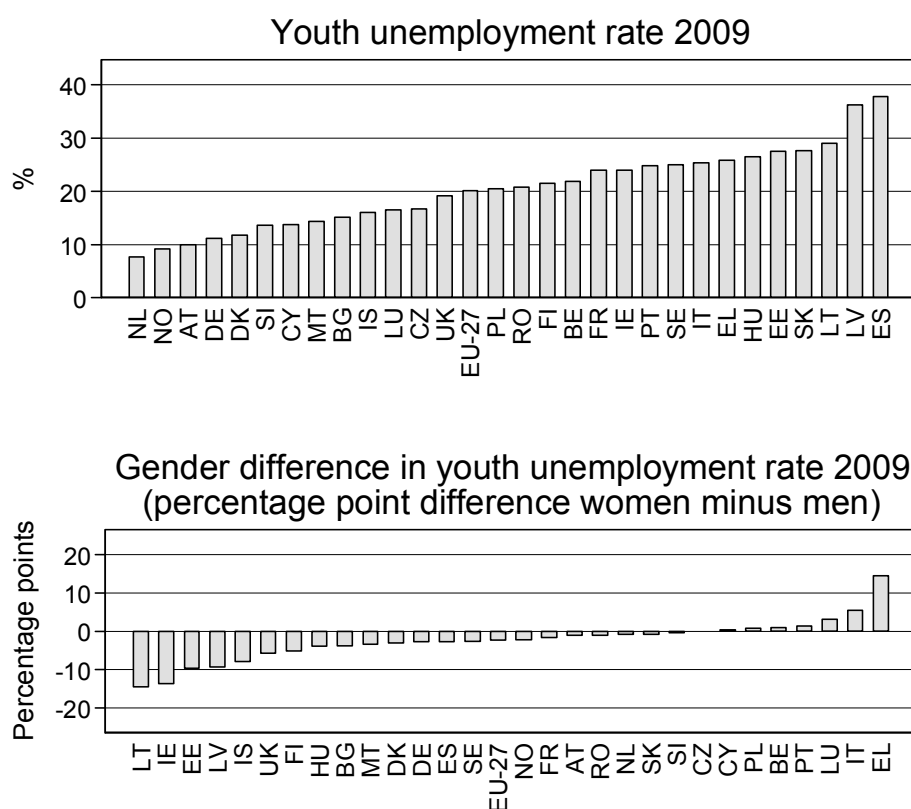
The ability to make a successful transition into the labour market is not only dependent on individual attributes, but it is also influenced by the national context and period in which youth are making this transition. To account for the impact of the crisis, we control for quarterly GDP (gross domestic product) per capita and the monthly total unemployment rate.² As described earlier in Box 1, we examine the transitions from leaving education to first job from 2004 to 2009. Since we include the monthly unemployment rate by the 29 countries in our models, it is not useful to show all figures in one table. The monthly unemployment rates during this period range from 6.1 per cent (Denmark) to 41.7 per cent

² It does not make sense to include the monthly *youth* unemployment rate in our models, since it is highly endogenous to our outcome.

(Poland), reaffirming the need to take these large contextual differences in the labour market climate into account. The upper panel of Figure 4 provides an indicative snapshot of an overview of the youth unemployment rate across Europe in 2009.

We see that some nations such as Spain, but also the Baltic States (Latvia, Lithuania, Estonia), Slovakia, Hungary, Greece and Italy have very high levels of youth unemployment. This is in contrast with the relatively lower levels of youth unemployment in nations such as the Netherlands, Norway, Austria, Germany and Denmark. Recall, however, that the youth under examination in this study leave formal education and enter the labour market also in the five-year period preceding 2009. The lower panel of Figure 4 shows the gender differences in the unemployment rate. The figure shows that generally, women are more likely to be unemployed in comparison to men in all countries, with more extremes in the Baltic States (Lithuania, Estonia, Latvia) and Ireland. Conversely, men are more likely to be unemployed in Greece, Italy and Luxembourg. It is essential to note, however, that these figures represent those who are officially registered as unemployed and does not capture everyone who is not labour force (i.e. discouraged workers, not registered as unemployed, housewives).

Figure 4: Youth unemployment rate across Europe, 2009



Source: Eurostat, une_rt_a, date of extraction: Feb 21, 2013

To have an indication of how youth unemployment differs across the different welfare state regimes, Figure 5 graphs the average youth unemployment rate for 2004–2009 by the median months until

starting a first job for men and women. The countries are grouped into different welfare state regimes according to symbols. The 29 countries are grouped into six welfare state regimes shown in Table 3: Welfare state regime classification of 29 European countries, following Whelan and Maître (2010).

Table 3: Welfare state regime classification of 29 European countries

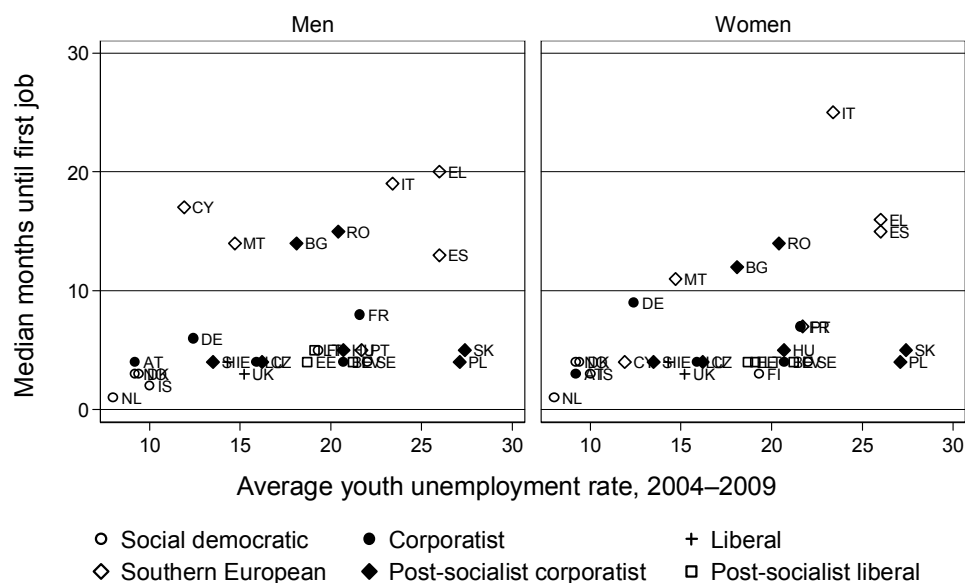
Welfare state regime	Countries
Social democratic	DK, FI, IS, NL, NO, SE
Corporatist	AT, BE, DE, FR, LU
Liberal	IE, UK
Southern European	CY, ES, GR, IT, MT, PT
Post-socialist corporatist	BG, CZ, HU, PL, RO, SI, SK
Post-socialist liberal	EE, LT, LV

Source: Whelan and Maître (2010).

We see that it is Southern European youth and those from post-socialist corporatist regimes that particularly face both the highest levels of youth unemployment and the longest job search. Conversely, the graphs show that youth from social democratic regimes fare the best. Patterns for men and women are similar, indicating that the relationship between gender with job search duration and youth unemployment are similar.

We also entered the monthly unemployment rate into our multivariate regression models to examine how the economic climate of the month when youth left education influenced their transition to first job. We can find this if we refer to the regression analysis in Table 6, which focuses on educational effects, and Model 2, where the unemployment rate is entered into the model. Here we see that **the higher the unemployment rate is when youth leave education, the significantly lower likelihood they have to enter into a first job.**

Figure 5: Youth unemployment rate and median number of months until first job, by gender



Source: EU-LFS 2009 AHM (authors' calculations) and Eurostat unemployment rates

The impact of the economic recession

The year 2009 when the data used in this report was collected is a pivotal year that followed the near-collapse of the worldwide financial markets in 2008. It is essential to note that each country experienced the economic recession differently and that the period of 2009 does not capture the full impact of the economic recession and how it varied in its severity or timing across Europe. Youth also entered the labour market in the years before this period. If GDP by country is examined and compared, the third quarter of 2009 is associated with the beginning of 'recession' period in most European countries (Bell and Blanchflower 2011). In 2009, some countries such as Ireland and the Baltic States (Latvia, Lithuania, Estonia) experienced a more immediate and deep impact. At the time of the analyses conducted in this report, growth started to slow in Spain, Italy and France whereas countries in Western Europe such as Germany, Denmark and Sweden were still experiencing growth. In the analyses, it is therefore useful to note that we can only start to see some of the impact of the economic recession on youth and only in various countries.

4.3. The impact of employment protection legislation on transition to first job

The countries examined within this report differ significantly with respect to the nature of their employment systems and employment legislation protection. Country-specific differences surface in elements such as types of work councils, collective bargaining systems, strength of unions versus employer organisations, labour legislation or administrative regulations. They produce distinct national variations of occupational structures and industries, patterns of labour-capital negotiations, strike frequencies and

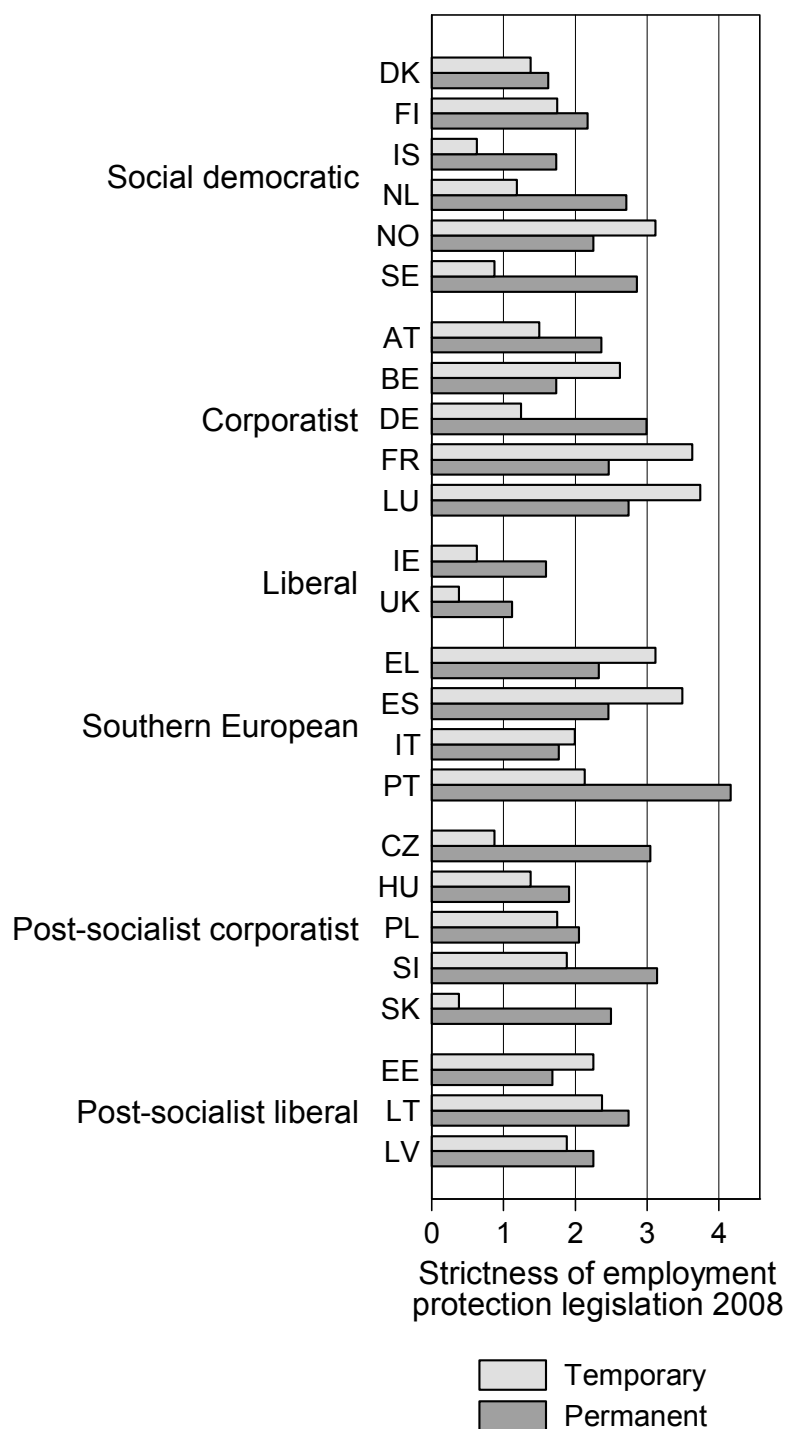
collective agreements on wages, job security, labour conditions, and work hours (Soskice 1991; Streeck 1992).

One way to operationalise and study differences in employment systems is via **employment protection legislation (EPL)**. This legislation can potentially benefit long-term employer and employee relationships by promoting a worker's efforts, cooperation and willingness to be trained. However, it can also be used to provide some workers with more employment security (for example, permanent contract) to the detriment of others (for example, temporary contract). Furthermore, EPL may also diminish an organisation's ability to cope and be flexible in the rapidly evolving economic situation in Europe.

In this report, employment protection legislation is measured via two distinct indicators. The **permanent employment protection indicator** is based on procedural difficulties (e.g. length of notification period) and direct costs (e.g. severance payments) that employers face when attempting to lay off workers. The **temporary employment protection indicator** taps at restrictions on the use, maximum duration and maximum number of consecutive temporary contracts, as well as restrictions with respect to temporary work agencies (Gebel and Giesecke 2011). These indicators are drawn from an OECD database (Venn 2009) and from Muravyev (2010) and vary on a yearly basis.

Employment protection legislation in the form of protection of workers in permanent contracts more often protects the 'insiders' in the labour market. Figure 6 shows the strictness of these two types of EPL measures grouped by the welfare state categories. Figure 6 shows that in general the strictness of both of these EPL measures generally groups by the welfare regimes, with the highest levels particularly for permanent contracts in Southern Europe and post-socialistic corporatist regimes, France and Luxembourg with the lowest levels in the liberal regimes.

Figure 6: Employment protection legislation (in 2008) by welfare regime

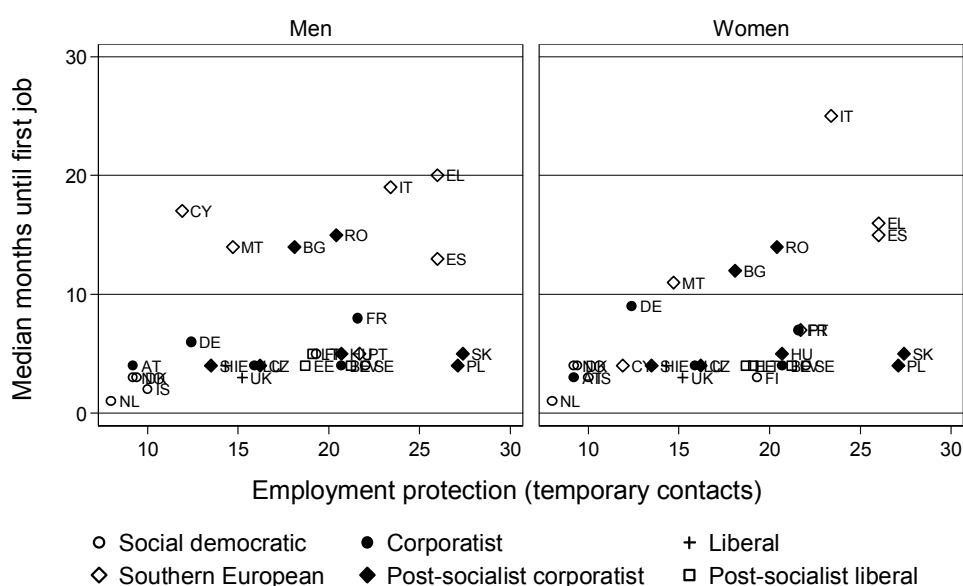


Note: The indices have a theoretical range from 0 (least strict) to 6 (most strict)
Sources: Venn (2009) and Muravyev (2010)

Figure 7 plots the median months until first job (i.e. when 50 per cent of youth enter a first job) for men and women respectively by the level of employment protection for temporary contracts by welfare regime. There are a large number of countries with similar median number of months despite very different levels

of EPL. If we refer to the multivariate regression analysis that examines the country-level indicators (Table 6), we see that **higher levels of EPL restrictions (either temporary or permanent contracts) result in a significantly slower transition to first job**. It appears, therefore, that lower strictness employment legislation allows youth to enter the labour market more rapidly, likely due to the higher levels of flexibility. Employment legislation has had a history of generally protecting labour market ‘insiders’ such as middle-aged men, which has also been established in previous research and particularly in Southern European countries where there is a strong insider/outsider labour market (Mills, Blossfeld and Bernardi 2006).

Figure 7: EPL temporary contracts & median number of months until first job, by gender



Source: EU-LFS 2009 AHM (authors' calculations) and Venn (2009) and Muravyev (2010)

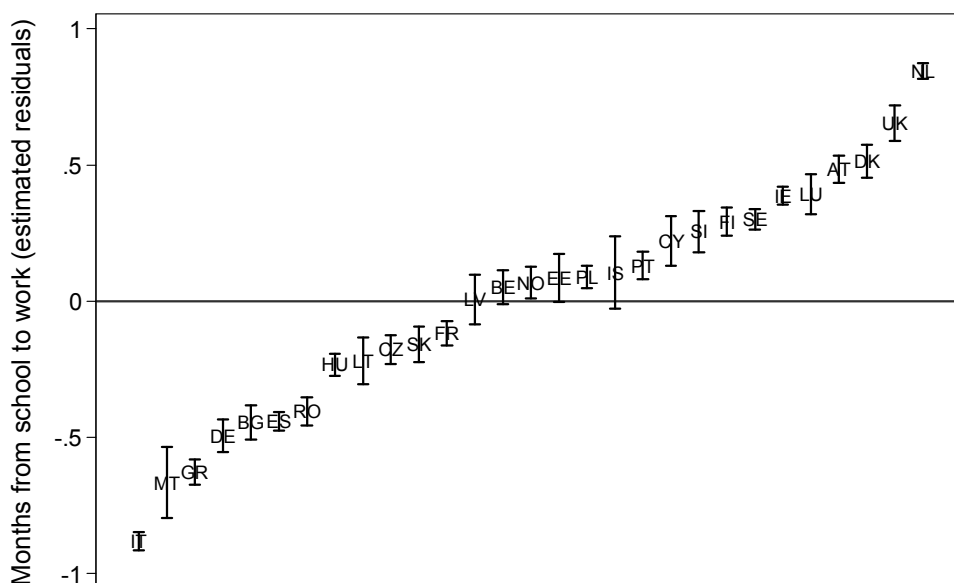
4.4. Cross-national differences in the transition to first job

We first ran a baseline model that enables us to see whether there are differences by country. As one would expect, that there is a **strong statistically significant difference that can be attributed to country-level differences between the transition from formal education to first job**.³ In order to visualise these differences between countries, we plotted the estimated residuals obtained from the basic model that ranks the countries in Figure 8. The figure shows the country effect or residuals that are obtained when we estimate a null model (i.e. estimating only the time from school to first job without any explanatory factors), together with the 95 per cent confidence intervals. Recall from Table 2 that the

³ We first estimated the baseline model with only a random intercept being estimated with country effects. In other words, the estimated intercept in this model is shared by all countries while the random effect is specific to each country. There is strong evidence to suggest that the between-country variance is non-zero or in other words that there are statistically significant differences between the countries. As described previously, country is entered as dummies or fixed-effects in the regression analyses that follow.

sample sizes in some of the countries are quite low, which is reflected in the wider confidence intervals this figure. To interpret this figure, note that the line of zero is the average level of the speed of transition to first job for all 29 countries. The countries that are above the horizontal line of zero are those that are significantly above the average, or in other words youth in these countries start their first jobs faster after leaving education. The countries around the zero line are average. Those countries that fall below the zero line are those that are below average with youth taking much longer to obtaining their first job.

Figure 8: Estimated residuals, time from school to work, 29 countries



Source: EU-LFS AHM 2009 (weighted), authors' calculations

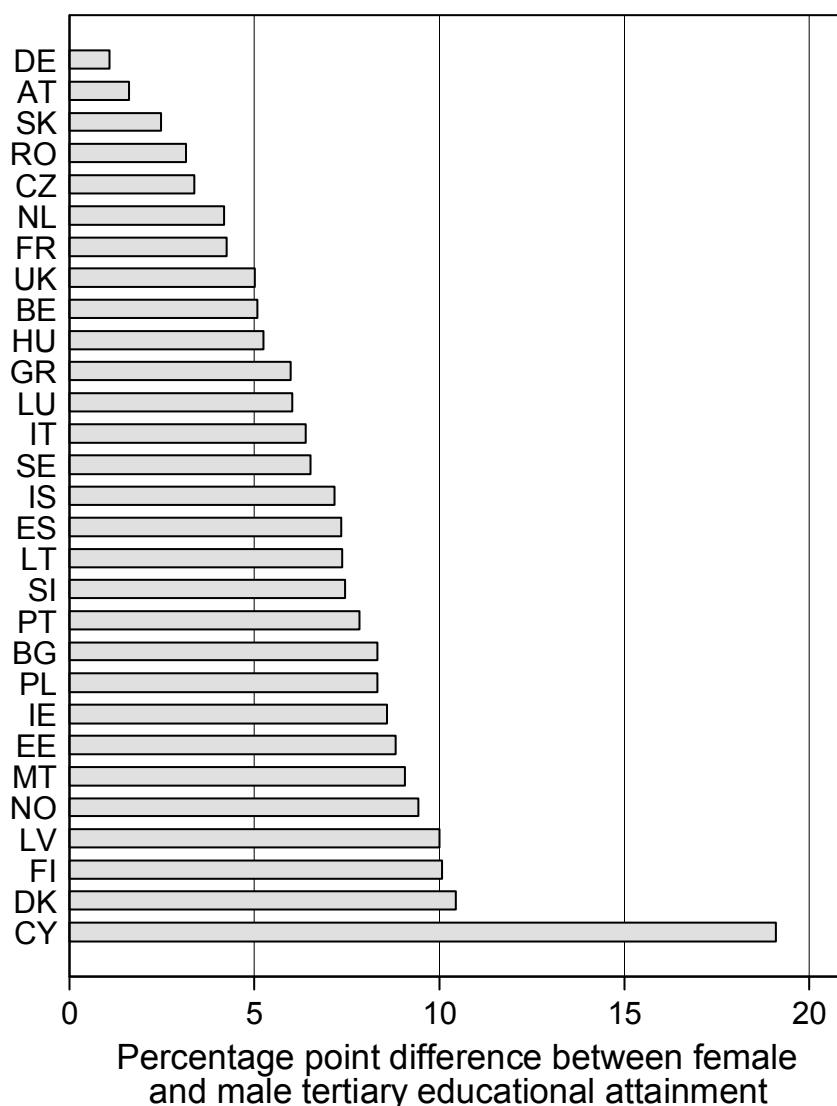
5. Individual-level factors influencing early labour market integration

The discussion until now has largely focused on the examination of general differences between men and women and cross-national variation. We now focus on individual-level factors that operate to influence the speed of transition from education to first job. These include gender differences in the level of education, educational field of study, vocational educational orientation, combining employment with education, parenthood, the type of first occupation and employment contract.

5.1. Gender differences in the level of education

Most countries have experienced remarkable levels of educational expansion in the past decades, particularly for younger women (Schofer and Meyer 2005). In many European countries, in fact, the educational inequalities between men and women have closed, with the average educational level of young women in higher levels of education even exceeding that of men (Breen et al. 2010). Figure 9 illustrates the differences by gender in educational achievement in tertiary education, showing the percentage point difference between female and male tertiary educational attainment.

Figure 9: Gender gap in tertiary education, 29 countries



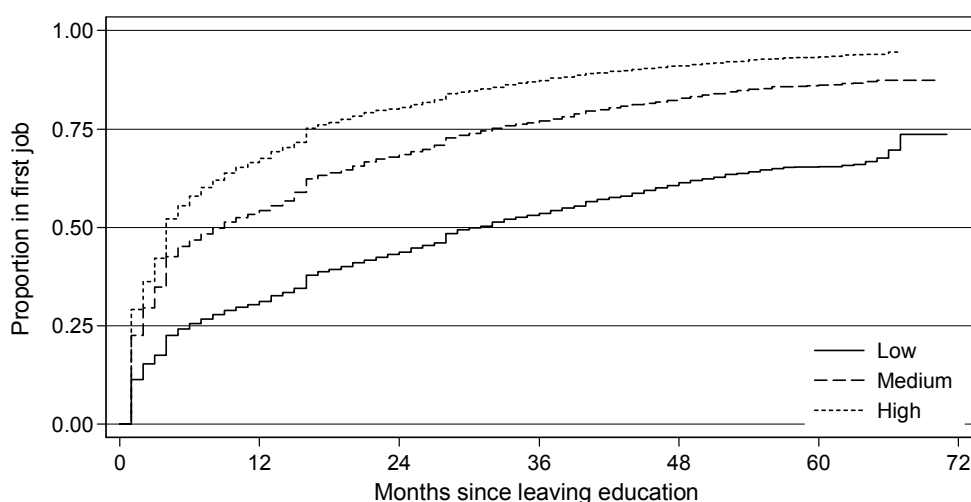
Source: EU-LFS 2009 AHM, own calculations

The first central conclusion we can draw from this graph is that women are overrepresented in the highest levels of education across all European countries. This means that if – theoretically speaking – we examined labour market outcomes by educational level alone, women should have an advantage. Previous results until now, however, show that women seem to have slower rates of obtaining their first job and thus that labour market success is not only related to level education, but also to the field of study and whether degrees are required on the labour market, occupational outcomes and other factors that make the association between education and labour market entry more complex (Buchmann et al. 2008; Breen et al. 2010). We therefore explore these issues in the remainder of this report.

The time that it takes to find a job by the highest level of education is shown in Figure 10 using a reduced categorisation of the ISCED educational categories as: (1) lower secondary (ISCED 0, 1, 2 and 3c short); (2) upper secondary (ISCED 3–4, without 3c short); and, (3) third or higher level (ISCED 5–6). This

figure demonstrates remarkable differences between educational levels in the speed at which youth make the transition to their first job. The figure clearly illustrates that **youths with the highest level of education make a considerably faster transition to their first job**, followed by those with medium levels of education and those with lower secondary levels of education making markedly slower transitions.

Figure 10: Transition from school to work by highest level of education, 29 European countries, 2009



Source: EU-LFS AHM 2009 (weighted), authors' calculations

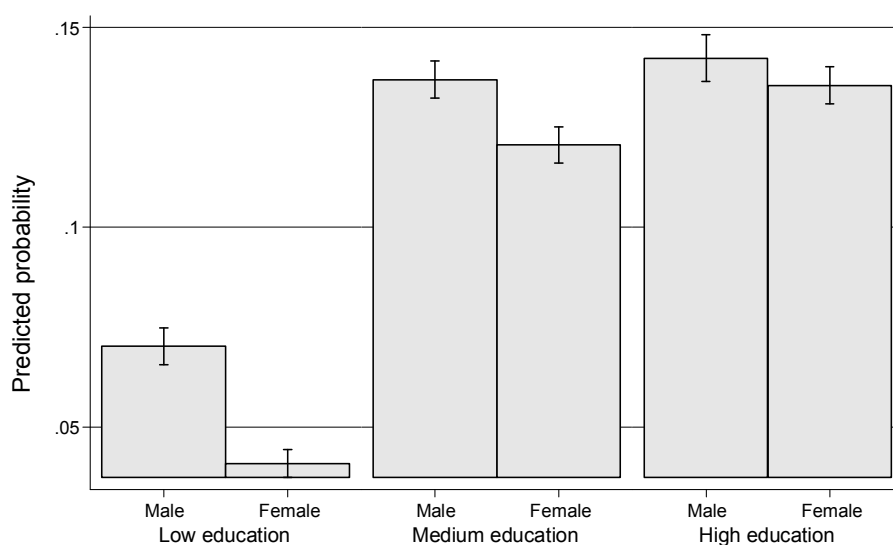
The regression estimates by the level of education shown in Table 4 (Model 1) likewise show that these differences are statistically significant, also when controlling for additional factors in the remaining models.⁴ This means that **European youth with the lowest levels of education (lower secondary only) take considerably longer to find a first job**. Conversely, those with the highest levels of education (ISCED 5–6) make the most rapid transitions into their first job. Higher levels of education aid youth in finding a first job more rapidly, which has also been consistently found in previous research (Shavit and Müller 1998). The differences across countries (see Figure 4) show that the largest inequalities between educational groups occur particularly in Eastern European countries of Bulgaria, the Czech Republic, Hungary, Poland, Romania and Slovakia, but also in Germany and Italy.

Turning to an examination of **gender differences**, we can see from Table 4 (Model 2) and Figure 11, that when we include an interaction of being a female by the level of education, women with both medium and higher levels of education fare better than the control group. To ease in the interpretation of interaction effects, Figure 11 graphs the interaction effect between gender and the highest level of

⁴ In the regression analyses we estimate multiple models. In Table 4 in Model 1, we include gender, age and educational level. Model 2 adds the interaction term between gender (female) and educational level. Model 3 includes the educational field of study, with Model 4 including an interaction between gender (female) and educational field.

education. The x-axis shows educational level by gender. The y-axis graphs the predicted probability of entering a first job, with the error bars showing the confidence intervals of the estimates. The figure allows us to clearly see that **both men and women with medium and higher levels of education fare better in finding a first job faster. Across all educational groups, however, women have worse first job prospects than men, particularly for the lowest educated group.** Although the gap closes as the educational level rises, the gender gap still holds for even the most highly educated group. We now turn to additional factors to understand why these differences might exist.

Figure 21: Interaction effect of sex by highest level of education



Note: Error bars are 95 % confidence intervals
 Source: EU-LFS 2009 AHM, authors' calculations

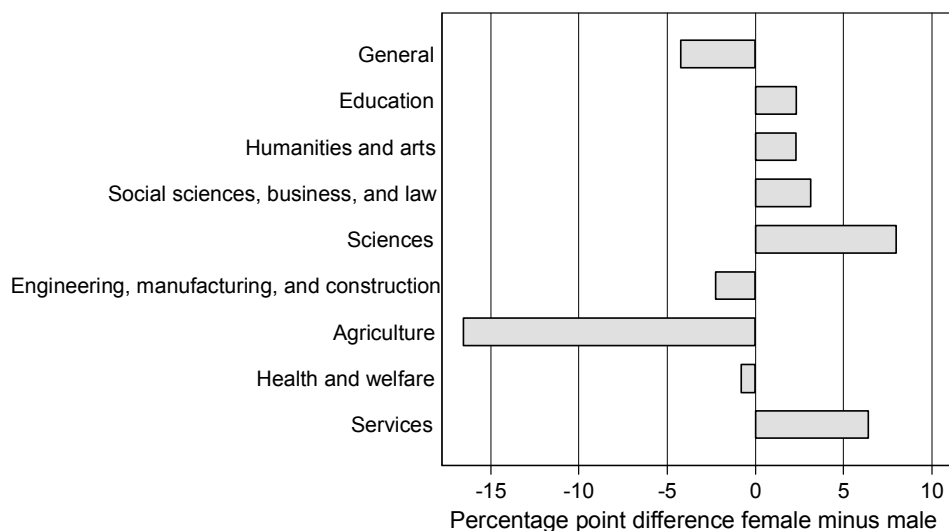
5.2. Gender differences in educational field of study

Although women have relatively higher levels of education than men across Europe, their transition to a first job is still slower than for men – even for the most highly educated. This presents a puzzle and requirement to look deeper into differences in the field or type of education. The educational field of study also plays a key role in early (and later) labour market careers (Smyth & Steinmetz 2008). Obtaining an educational degree in a particular field of study is a decision that is guided by preferences and expectations about the nature of the job that a particular study leads to (Lippa 2010). Initial decisions about the field of study are often gendered (Gundert & Mayer 2012) and not only determine the amount of time spent in education, but also strongly shape an individual’s labour market career and further family decisions (Begall & Mills 2012; Gesthuizen et al. 2011).

Figure 32 shows the level of gender segregation by educational field of the highest level of education or training successfully completed. It shows a ratio of the proportion of women within each respective field of study by the proportion of men in that respective field. In the EU-LFS AHM, educational field was measured according to Eurostat’s detailed *Fields of Education and Training Manual* (Andersson & Olsson 1999). To engage in a more straightforward comparison, the educational field has been collapsed into

nine categories, which consist of: (1) general programmes, (2) teaching and educational science, (3) humanities and arts (which also includes languages and arts, foreign languages), (4) social sciences, business and law, (5) life and physical sciences,⁵ (6) engineering, manufacturing and construction, (7) health and welfare, (8) services, and (9) unknown. This information was only collected for ISCED levels 3c to 6 (i.e. not for respondents with less than upper secondary education).

Figure 32: Gender differences in educational field of study



EU-27 plus Norway and Iceland
Source: EU-LFS 2009 AHM, weighted, own calculations

To interpret Figure 32, numbers above one indicate an overrepresentation of women in a particular educational field, numbers around one show no gender difference, and values below one indicate that men are overrepresented. The graph shows that **women are underrepresented in the general, engineering, manufacturing and construction, agriculture and to a lesser extent in health and welfare fields.** Conversely, **women are overrepresented in all other types of education, and particularly teaching and education, humanities and arts, social sciences, business and law, sciences and services.** As we will explore shortly, each area of study is connected with a particular labour market outcome and therefore has the potential to strongly influence the ability to enter into the labour market and the types of jobs that are available.

To understand whether the differences significantly impact labour market entry, we can turn to the regression results in Table 4 (Model 4), which examines the interaction between whether the individual is a female (male is reference group) by educational field (with Education and Teaching as reference group).

Model 4 shows **no significant differences in the speed of job entry between women who studied within more female-typical fields** of Education with general education, Humanities and arts and Health and Welfare. However, **when women study male-typical fields, they have significantly slower entry**

⁵ Which includes biology, environmental sciences, physics, chemistry, earth science, mathematics and statistics and computer science and use.

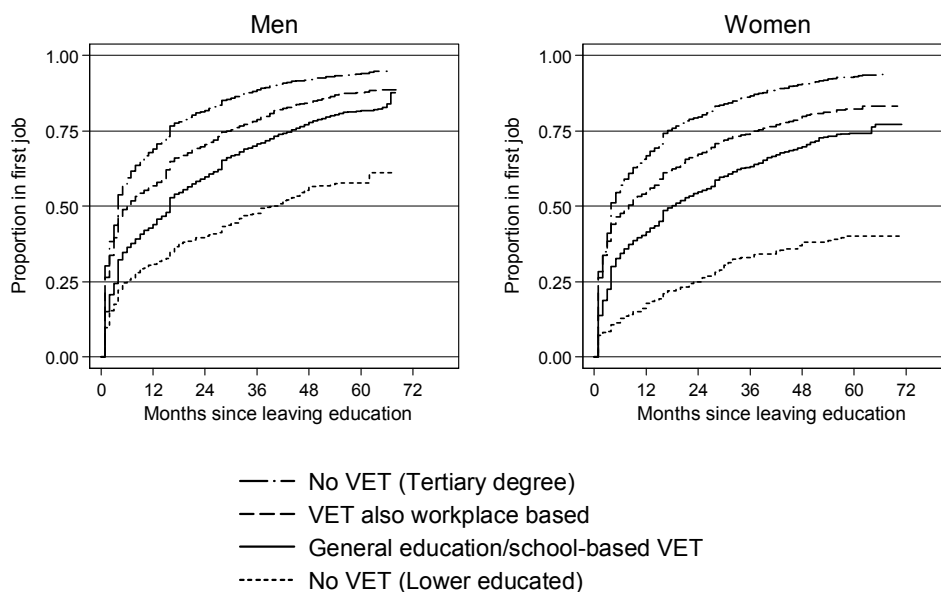
into the labour market. Whereas from Model 3 we see that youth who study Engineering, manufacturing and construction have a significantly faster entry into the labour market, when we look at the gender interactions in Model 4, we see that this does not hold for women. The same gendered effect also holds for agriculture and services. Although women appear to be making progress in terms of attaining higher levels of education, women are only making headway in the early labour market and comparable to men when they study the more traditional areas of education and teaching and healthcare jobs. Begall and Mills (2012) recently demonstrated that fertility is higher in these occupations, suggesting that women may self-select themselves into these positions with the knowledge that they are able to combine these occupations with parenthood.

5.3. Gender differences in vocational educational orientation

To ease the interpretability of results, Figure 13 first shows the duration of job search by the orientation of education in two categories only of: (1) general education and school-based vocational education and training (VET); and (2) VET at least partially workplace-based.⁶ We also divided the figure by gender for comparison. The figure shows that **youths with VET that is at least partially workplace-based make a more rapid transition into starting their first job.** These differences are likely also attributed to the structural differences in the educational system, which was discussed previously. The figure also shows that the returns may differ by sex due to the differences in the curves, which is more efficient to explore via regression analysis.

⁶ The first category includes those who were in: general education (71.3 per cent) and vocational education mainly (or solely) school based (10.7 per cent). The second category includes those who were in a combination of school and workplace based vocational education (4.7 per cent), vocational education mainly workplace based (1.6 per cent) and vocational education, with no distinction possible (11.8 per cent).

Figure 13: Hazard of transition from school to work by VET and gender, 29 European countries



Source: EU-LFS AHM 2009 (weighted), authors' calculations

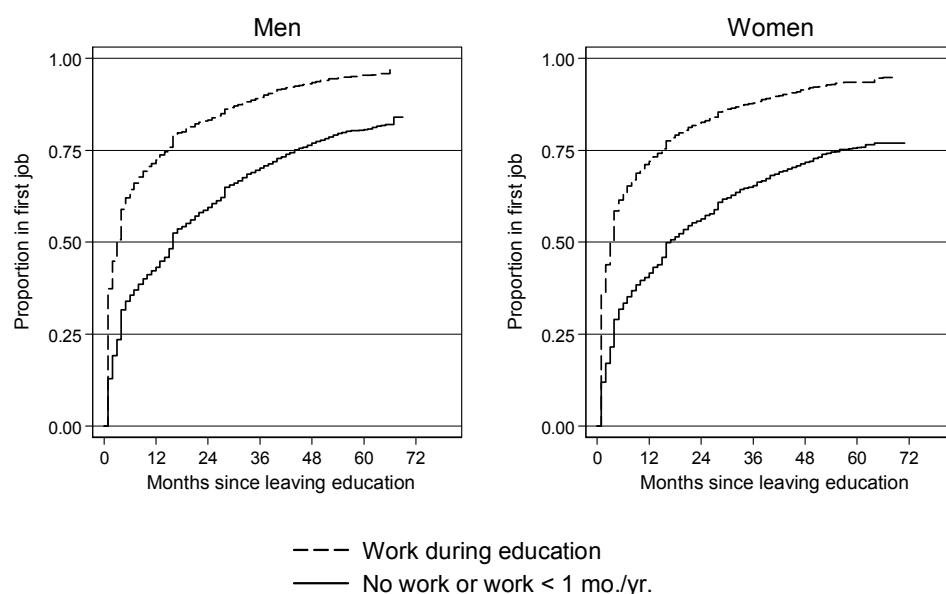
A related aspect is the type or orientation of educational training, which we will examine in more detail for respondents that have a medium-level education (i.e. ISCED 0–1 and 5–6 are excluded in the data collection). Previous research has shown that students who have more general education have more difficulties upon entry into the labour market, whereas those with some vocational and educational training (VET) that is – at least partially – workplace-based fare better (Biavaschi et al. 2012). This is attributed to the previous labour market experience of the latter group and the fact that they already have a ‘foot in the door’ into the labour market.

From the multivariate regression results, shown in Table 7 (Model 1), we see that this difference is also statistically significant. We then examined if this effect differed for men versus women (Table 7, Model 2). Here we see that in comparison to the reference group (referring to “Female X VET not workplace based” in the table), **particularly those who have no VET and higher education have slower transitions to first jobs**. We also see that **the positive impact of workplace based VET orientation shown in Model 1 for both sexes is largely driven by young men**. In other words, as Model 2 shows, it does not translate to women, who have a significantly slower transition to first job when in this group.

5.4. Impact of combining employment with formal education

It is not only whether youth have formally obtained workplace-based experience that matters when entering the labour market, but also the general virtue of the fact that they have some employment experience. For this reason, we also examined whether youths had some type of employment experience before leaving formal education. Youths who are employed while simultaneously also enrolled in formal education may improve their chances when entering the labour market by obtaining employment experience.

Figure 14: Hazard of transition from school to work by whether youths worked during formal education and gender, 29 European countries



Source: EU-LFS AHM 2009 (weighted), authors' calculations

Figure 14 compares the rate of entry into a youth's first job by comparing those who did not work or worked less than one month in a year with those who combined work during their formal education. We see that indeed **those who worked during formal education have a markedly higher rate of job entry** compared to those who did not. In Figure 23, the results are disaggregated by country, showing similar patterns, with some countries demonstrating less variation between the groups.⁷ As shown in Table 7 (Models 3 and 4), this difference is statistically significant. When we examine this effect by gender (Model 4) we did not see any significant differences in relation to men.

5.5. Gender differences in the impact of parenthood

Although we are not able to directly examine the causal relationship between the exact timing when youth have their children and how this impacts their entry into the labour force, the data do allow us to examine the speed of transition by observing whether individuals have children at the time of the interview.⁸ As

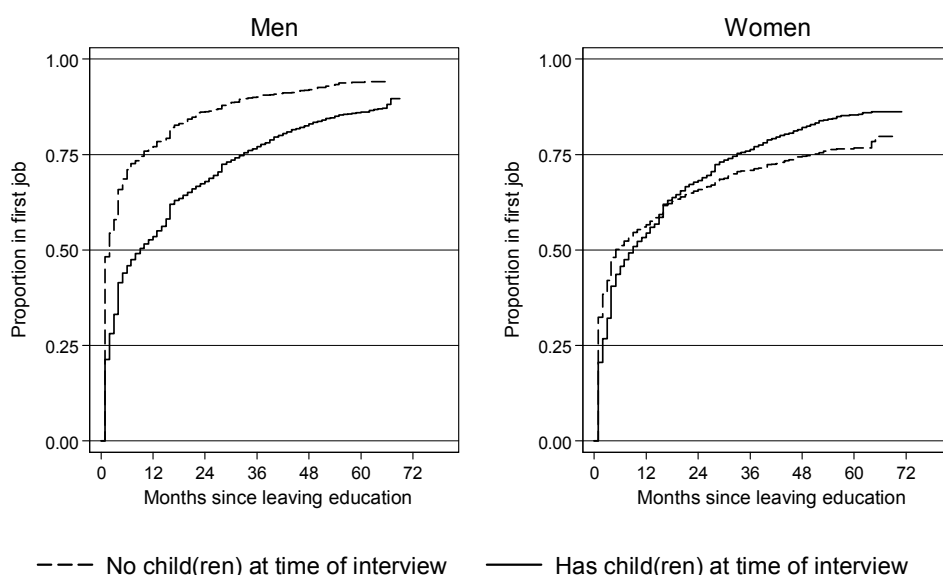
⁷ When we examine the overlap between educational orientation (examined in the previous section) and this group, we see that this variable measures something broader and different. For example, for those in general education with no workplace-based experience, around 30.3 per cent worked during education and 69.7 per cent did not. For those who stated that they had VET education that was also workplace-based, 54.4 per cent stated that they had worked during education and 45.6 per cent did not.

⁸ Although there is some information about children collected in the EU-LFS, in order to establish a causal link between first job and parenthood, we would need to engage in a longitudinal analysis, which requires more detailed information on the timing of the births of children. In the EU-LFS, the actual ages of the children in the household are aggregated into larger groups which make it difficult to link any exact labour market transitions to the birth of a child.

previously noted in Box 2, it is essential to note when examining this analysis, which is shown separately in Table 7, that the household grid to determine whether there are co-resident children in the household is not available in the Nordic countries (DK, FI, IS, NO, SE excluded), with this analysis only focusing on 24 countries.

The differential impact that parenthood has on men versus women when examining the transition to first job is one of most marked gender differences in this study. Figure 15 shows that **whereas men with children make more rapid transitions into their first job, the exact opposite effect is true for women**. In fact, it is women with no children in the household who make the more rapid transitions to first job. Considering the age ranges of the youth and our sample limitation to the last five years, it is reasonable to assume that these children were born around (just before or after) the transition to first job.

Figure 15: Hazard of transition from school to work by whether youth have children in the same household by gender, 29 European countries



DK, FI, IS, NO, and SE excluded

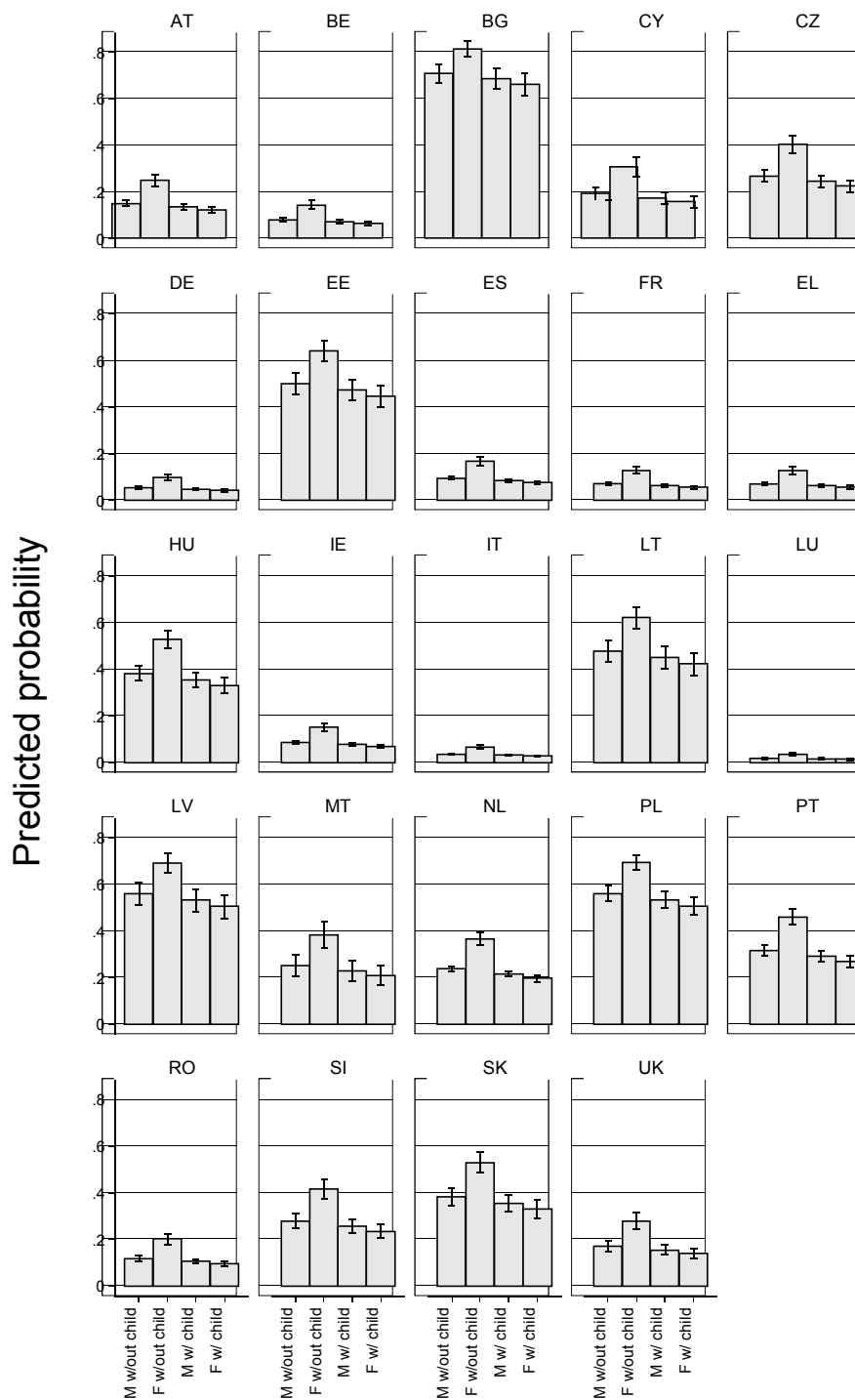
Source: EU-LFS AHM 2009 (weighted), authors' calculations

The results of the regression analysis in Table 7 for both men and women show that those who have children have a significantly faster transition to first job. However, when we disaggregate this finding by gender and examine the interaction between gender and parenthood status (Model 3), we see a very different story. As the regression model shows, we see that once we look at the parenthood effect by gender, **compared to fathers, mothers are significantly less likely to have made a rapid transition to first job**. It is easier to interpret these interaction effects if they are illustrated in a graph. The results are displayed for all countries combined in Figure 15 and in Figure 16 for selected countries. Recall that when interpreting these graphs, the x-axis shows the presence of children in the household by gender. The y-axis graphs the predicted probability of entering a first job, with the error bars showing the confidence intervals of the estimates. Here we see striking results with women and men without children experiencing almost identical transitions to the first job (although women still slightly lower). Conversely, being a

parent has a highly gendered impact on the transition to first job, with **mothers experiencing a more prolonged transition to first job than both fathers and women without children.**

It is interesting when we plot a three-way interaction between gender, parenthood status, and country, which is shown in Figure 16. Here we see that although this gap between particularly mothers and non-parents follows a similar pattern across all of the countries, the magnitude of the effects between countries differs quite substantially. On the x-axis, the first bar on the left represents men without children, the second bar is women without children, followed by men and women with children respectively.

Figure 16: Interaction effect of gender by parenthood status

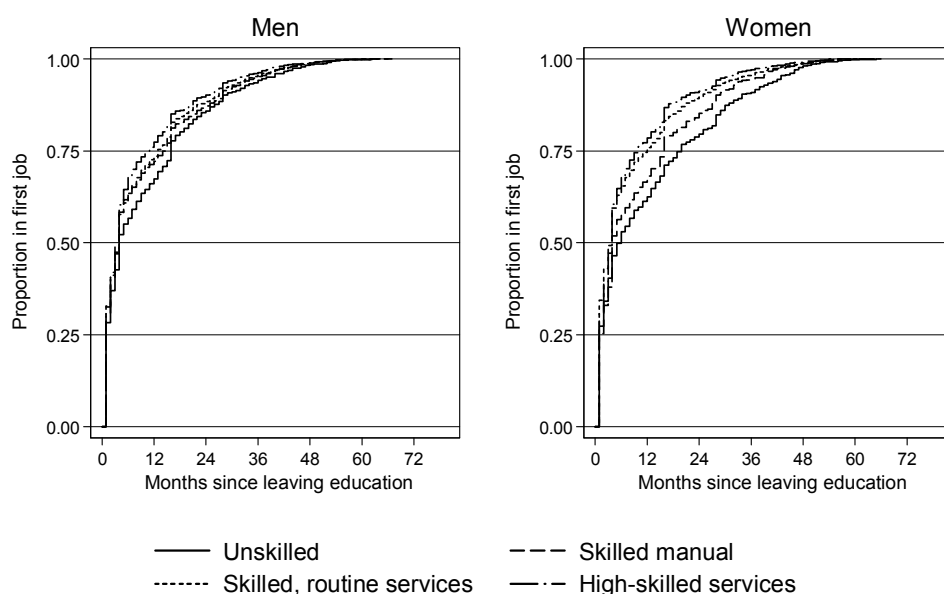


Note: Error bars are 95% confidence intervals
 Source: EU-LFS 2009 AHM, authors' calculations

5.6. Differences by occupational groups

We also examined the speed at which different youth make the transition from school to work according to the occupation that they first enter and how this differs by gender. These results are shown in Table 7. The spectrum of occupations is divided into four occupational groups (based on 1-digit ISCO codes). We distinguish between (1) unskilled jobs (ISCO main group 9), (2) skilled manual jobs (ISCO main groups 6, 7, and 8), (3) skilled routine services (ISCO main groups 3, 4, and 5), and (4) high-skilled services (ISCO main groups 1 and 2). Due to small numbers, we excluded those in the military as their first job.

Figure 17: Transition from school to work by occupation and gender, 29 European countries



Source: EU-LFS AHM 2009 (weighted), authors' calculations

Figure 17 and Table 7 (Models 5-6) provides the estimates for the impact of occupation of the first job by the speed of entry for both sexes. Here we see that in comparison to unskilled workers, **youths in skilled manual and skilled-routine services have significantly faster transitions to first jobs**. Turning to the gender differences (Model 6), which include the interactions between occupation of first job and gender, we see that **this positive effect seemed to be largely driven by female skilled workers in routine services**. This suggests that it is the unskilled male workers that fall behind in finding a first job quickly, which connects to our earlier results on the protective factor that higher education plays.

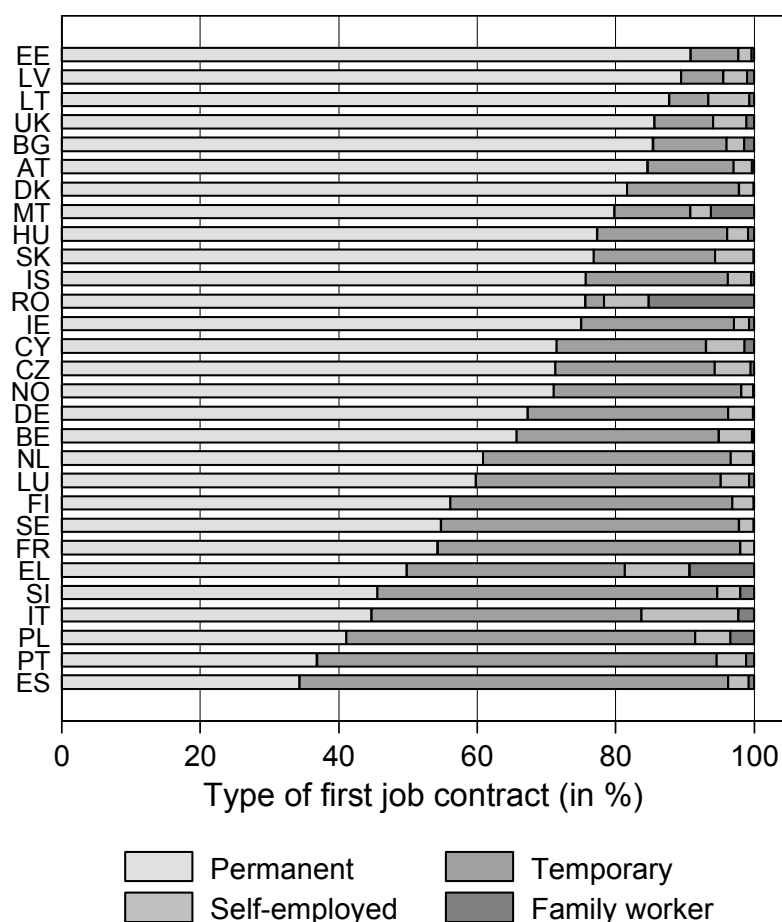
5.7. Differences by type of contract

The type of contract upon entry into a first job is often a pivotal indicator of youth's labour market security and the ability to establish independence. A permanent contract offers more security than a temporary contract or being a self-employed worker. The ability to take out a mortgage or move households is also often tied with the type of employment contract in many countries (Kurz & Blossfeld 2004). Figure 18 shows a plot of the distribution of contract types that youth obtained in their first jobs

across the various countries. Permanent contracts as the first job type are relatively widespread across Europe. We also see that temporary contracts are also a typical type of employment contract entry in Europe. This is particularly the case in Southern European countries such as Spain, Greece, Italy and Portugal, where temporary contracts are often the first type of contract youth acquire. The only exceptions where temporary contracts seem to be less prevalent are Austria, Bulgaria, Estonia, Lithuania, Latvia, Malta, Romania, Ireland, Luxembourg and the United Kingdom.

Turning to the regression results in Table 7 (Model 7) we see that in comparison with youths that had a permanent contract, those who enter into a **temporary contract or as a family worker start their first job earlier**. Family workers include those who are employed in a family business. Conversely, the **self-employed experience a longer period between leaving school and starting their first business**. We also examined the impact of contract type by gender, with no significant differences.

Figure 18: Prevalence of first job contract types in 29 European countries



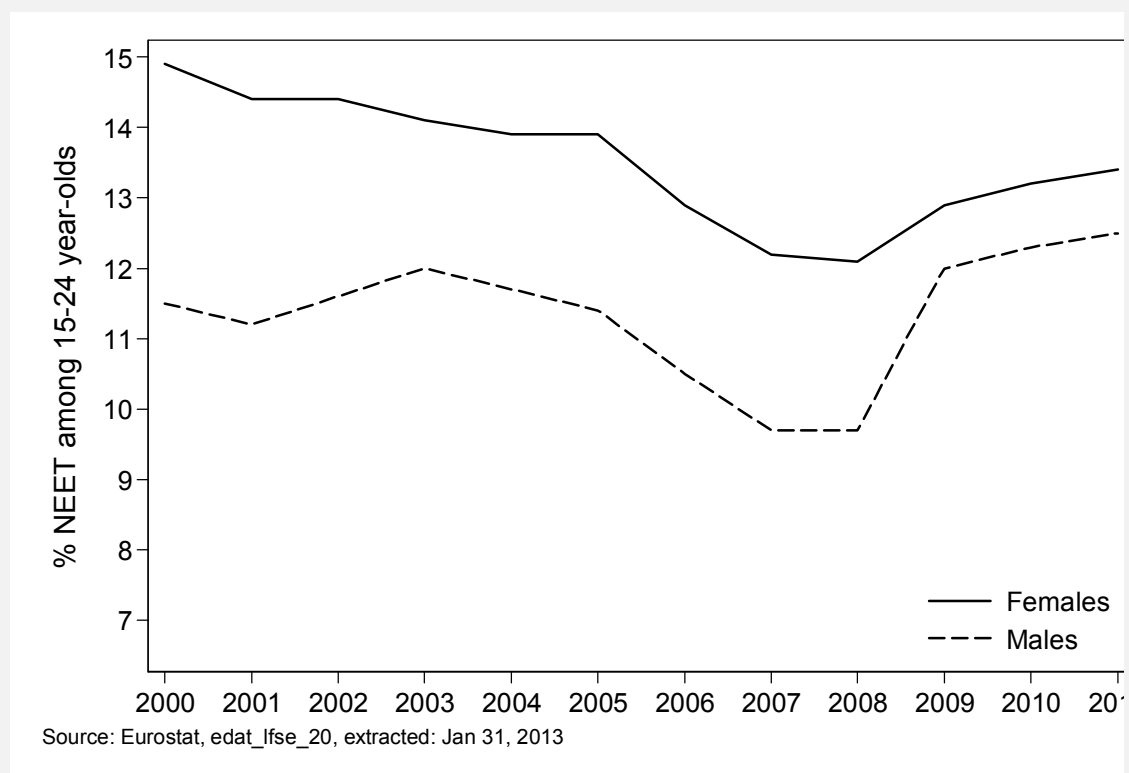
Source: EU-LFS AHM 2009 (weighted), authors' calculations

Box 4: Gender differences among adolescent NEETs in Europe, 2000–11

A group which is not explicitly analysed in this report which however has generated substantial policy interest in the aftermath of the economic crisis (Bell & Blanchflower 2011; Eurofound 2012a; European Commission 2013; Hawley et al. 2012; Eurofound 2012b; OECD 2011a) are the so-called 'NEETs,' these are young people **Not in Employment, Education, or Training**. *Youth on the Move* (European Commission 2010), one of the Europe 2020 flagship policies, aims at securing access to training or the labour market to young people and emphasizes the need for Member States to address the challenges facing NEETs. In this section, we will present a glimpse on the gendered nature of NEETs aged 15 to 24 years in Europe.

A look at the data over time (Figure 19) reveals a number of aspects. Firstly, in EU-27, the share of NEETs had been decreasing until the economic crisis. Since the economic crisis, the **rate of NEETs is increasing** again. Secondly, being a NEET is a markedly gendered phenomenon. **Women are more likely to be NEETs** at all observed time points. Thirdly, this **gender gap has been closing in recent years**, unfortunately not by declining NEET rates of females, but by a stark increase of male NEET rates during the economic crisis.

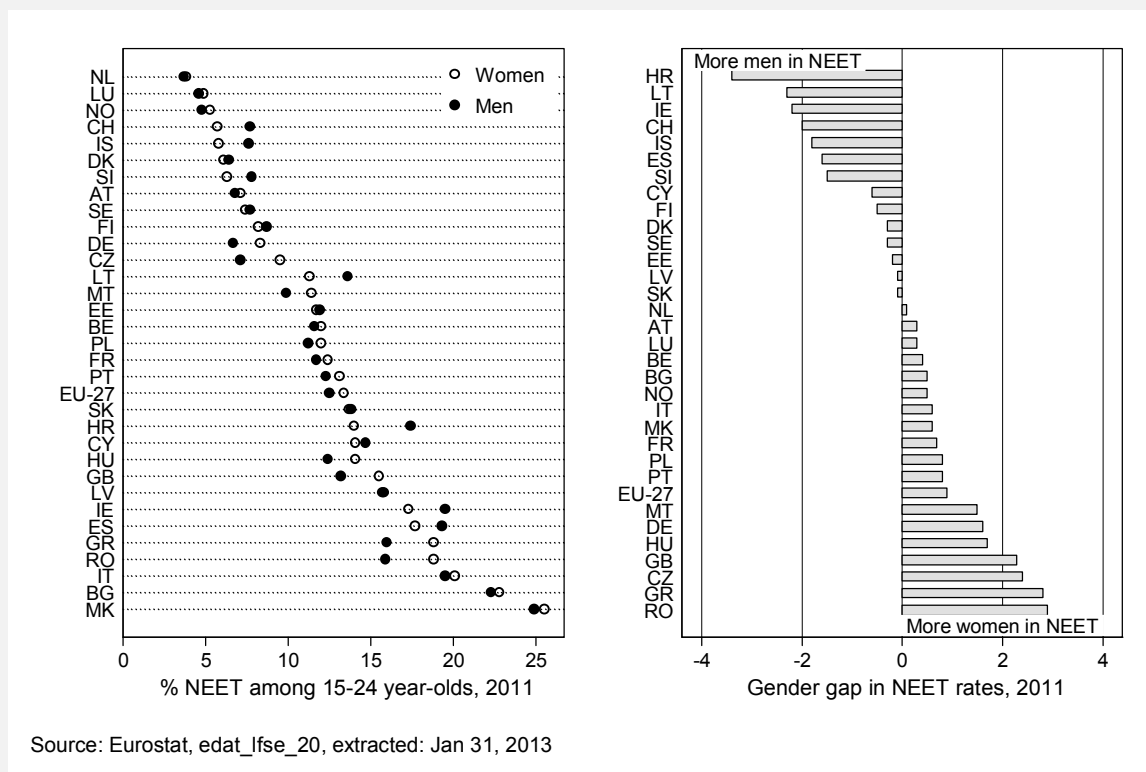
Figure 19: EU-27 NEET rate by gender from 2000 to 2011



Box 5: Gender differences among adolescent NEETs in Europe, 2000–11 (continued)

If we look at variation in NEET rates across countries in 2011 (left panel of Figure 20), we find substantial heterogeneity. Whereas NEET rates are as low as four per cent in prospering Western European countries such as the Netherlands, Luxembourg, and Norway, in Eastern and Southern European countries such as Spain, Greece, Romania, Italy, Bulgaria, and Macedonia they can be as high as 25 per cent.

Figure 20: NEET rate by country and gender in 2011



A look at the gender gap in 2011 by country (right panel of Table 20) shows that there is also substantial variation in the size of the gender gap when compared between countries. Many countries show the pattern we have seen for the EU-27 aggregate in Figure 19: in countries such as Romania, Greece, the Czech Republic and the United Kingdom, the NEET rate for women is up to three percentage points higher than for men. In another group of countries, there is little difference between the NEET rates of men and women. Finland, Denmark, Latvia, the Netherlands and Austria are examples for this group. However, there is also a group of countries where we find a reverse gender gap: in countries such as Croatia, Lithuania, Ireland and Switzerland, the NEET rate of men is two to four percentage points higher than the rate for women.

Table 4: Complementary log-log discrete-time (random-effects) model, transition from school to first job, youths 15–34, 29 European countries, focus on educational level and field of education

	(1)	(2)	(3)	(4)
	Educational level		Field of education	
Female (<i>Ref. male</i>)	-0.170** (-8.89)	-0.582** (-10.95)	-0.083** (-3.74)	0.106 (1.01)
Age (<i>Ref. 20–24 y</i>)				
15–19 y	-0.807** (-21.93)	-0.806** (-21.90)	-0.543** (-11.26)	-0.546** (-11.31)
25–29 y	0.591** (22.29)	0.597** (22.49)	0.596** (25.43)	0.604** (25.73)
30–34 y	1.170** (33.36)	1.179** (33.58)	1.173** (35.80)	1.186** (36.11)
Education (<i>Ref. low</i>)				
Medium education	0.924** (28.40)	0.758** (18.92)		
High education	1.030** (27.43)	0.804** (17.39)		
Gender X Education (<i>Ref. Female X low education</i>)				
Female X medium		0.432** (7.20)		
Female X high		0.523** (8.55)		
Educational field (<i>Ref. Education</i>)				
General programme			-0.404** (-7.53)	-0.262* (-2.54)
Humanities and arts			-0.252** (-4.37)	-0.133 (-1.16)
Social sciences, business, and law			0.107* (2.27)	0.189+ (1.90)
Sciences			-0.0960 (-1.64)	0.100 (0.95)
Engineering, manufacturing, and construction			0.143** (2.86)	0.338** (3.48)
Agriculture			-0.119 (-1.62)	0.102 (0.84)
Health and welfare			0.202** (3.79)	0.186 (1.53)
Services			0.184** (3.38)	0.379** (3.53)
Gender X Educational field (<i>Ref. Female X education</i>)				
Female X general				-0.161

programme				(-1.35)
Female X humanities and arts				-0.141 (-1.06)
Female X social sciences, business, and law				-0.0795 (-0.71)
Female X sciences				-0.311* (-2.35)
Female X engineering, manufacturing, and construction				-0.456** (-3.80)
Female X agriculture				-0.358* (-2.24)
Female X health and welfare				0.0121 (0.09)
Female X services				-0.256* (-2.06)
GDP per capita (logged)	1.897** (28.38)	1.902** (28.45)	1.867** (26.77)	1.874** (26.86)
Country dummies	Yes	Yes	Yes	Yes
Constant	-19.42** (-32.24)	-19.31** (-32.05)	-18.30** (-28.98)	-18.52** (-29.06)
$\ln(\sigma_u)$	1.132** (84.08)	1.130** (83.94)	1.057** (73.94)	1.056** (73.88)
Person-period months	713774	713774	537960	537960
Persons	59826	59826	50954	50954
Countries	29	29	29	29
Degrees of freedom	35	37	41	49
Rho	0.653	0.653	0.636	0.636
Log-likelihood	-146876.8	-146839.7	-126743.2	-126721.9
AIC	293827.5	293757.4	253572.5	253545.8
BIC	294252.2	294205.1	254053.9	254116.7

Source: EU-LFS AHM 2009, authors' calculations.

Notes: T-statistics in parentheses, + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$

Table 5: Complementary log-log discrete-time (random-effects) model, transition from school to first job, youths 15–34, 22 European countries (BG, CY, IS, LU, MT, RO and SI excluded due to lack of information), focus on country-level indicators

	(1) GDP per capita	(2) Unemployment rate	(3) EPL
Female (<i>Ref. male</i>)	-0.168** (-8.20)	-0.167** (-8.16)	-0.168** (-8.19)
Age (<i>Ref. 20–24 y</i>)			
15–19 y	-0.767** (-19.47)	-0.752** (-19.06)	-0.763** (-19.26)
25–29 y	0.526** (18.70)	0.523** (18.60)	0.526** (18.67)
30–34 y	1.082** (28.98)	1.084** (29.04)	1.089** (29.14)
Education (<i>Ref. low</i>)			
Medium education	1.046** (29.85)	1.049** (29.93)	1.048** (29.88)
High education	1.137** (28.21)	1.141** (28.31)	1.138** (28.21)
GDP per capita (logged)	1.490** (18.67)	1.178** (12.77)	1.167** (12.35)
Unemployment rate		-0.0327** (-6.68)	-0.0330** (-6.70)
EPL regular contracts			-0.250** (-2.78)
EPL temporary contracts			-0.237** (-3.17)
Country dummies	Yes	Yes	Yes
Constant	-15.85** (-22.06)	-12.91** (-15.35)	-11.85** (-12.84)
$\ln(\sigma_u)$	1.163** (81.95)	1.160** (81.64)	1.162** (81.70)
Person-period months	627408	627408	627408
Persons	53506	53506	53506
Countries	22	22	22
Degrees of freedom	30	31	33
Rho	0.660	0.660	0.660
Log-likelihood	-129088.1	-129065.5	-129058.0
AIC	258240.1	258197.1	258186.0
BIC	258603.3	258571.6	258583.3

Source: EU-LFS AHM 2009, authors' calculations.

Notes: T-statistics in parentheses, + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$

Table 6: Complementary log-log discrete-time (random-effects) model, transition from school to first job, youths 15–34, 24 European countries (DK, FI, IS, NO and SE excluded due to lack of information), focus on co-residing child(ren)

	(1)	(2)	(3)
	Education	Children	
Female (<i>Ref. male</i>)	-0.197** (-9.58)	-0.210** (-10.01)	-0.130** (-5.93)
Age (<i>Ref. 20–24 y</i>)			
15–19 y	-0.873** (-21.88)	-0.867** (-21.72)	-0.864** (-21.67)
25–29 y	0.597** (21.12)	0.585** (20.57)	0.581** (20.45)
30–34 y	1.340** (34.52)	1.302** (32.20)	1.284** (31.78)
Education (<i>Ref. low</i>)			
Medium education	0.906** (25.75)	0.914** (25.91)	0.905** (25.68)
High education	1.018** (25.23)	1.036** (25.43)	1.019** (25.04)
Co-residing child (<i>Ref. no co-residing child</i>)		0.111** (3.25)	0.684** (11.35)
Gender X co-residing child (<i>Ref. Female X no co-residing child</i>)			
Female X co-residing child(ren)			-0.808** (-11.52)
GDP per capita (logged)	1.966** (27.95)	1.976** (28.06)	1.979** (28.12)
Country dummies	Yes	Yes	Yes
Constant	-19.94** (-31.50)	-20.05** (-31.61)	-20.11** (-31.72)
$\ln(\sigma_u)$	1.104** (74.98)	1.105** (75.07)	1.100** (74.49)
Person-period months	635612	635612	635612
Persons	51090	51090	51090
Countries	24	24	24
Degrees of freedom	30	31	32
Rho	0.647	0.647	0.646
Log-likelihood	-126271.7	-126266.5	-126200.8
AIC	252607.5	252599.0	252469.6
BIC	252971.1	252973.9	252855.9

Source: EU-LFS AHM 2009, authors' calculations.

Notes: T-statistics in parentheses, + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$

Table 7: Complementary log-log discrete-time (random-effects) model, transition from school to first job, youths 15–34, 29 European countries, focus on occupation

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	VET orientation		Work during education		Occupational groups		Contract type
Female (<i>Ref. male</i>)	0.0216 (1.30)	0.0786** (2.73)	0.00592 (0.36)	-0.0130 (-0.55)	0.0369* (2.05)	-0.134* (-2.08)	0.0269 (1.61)
Age (<i>Ref. 20–24 y</i>)							
15–19 y	0.0508 (1.49)	0.0511 (1.50)	0.0327 (1.00)	0.0316 (0.96)	-0.0478 (-1.42)	-0.0499 (-1.48)	-0.0492 (-1.46)
25–29 y	0.374** (16.30)	0.372** (16.23)	0.311** (16.68)	0.312** (16.69)	0.463** (22.80)	0.465** (22.87)	0.406** (21.40)
30–34 y	0.918** (30.36)	0.916** (30.25)	0.793** (29.88)	0.793** (29.88)	1.016** (35.87)	1.018** (35.92)	0.948** (35.13)
VET orientation (<i>Ref. VET not workplace-based</i>)							
VET also workplace-based	0.452** (18.27)	0.487** (15.65)					
No VET (Low education)	-0.211* (-2.49)	-0.132 (-1.33)					
No VET (High education)	0.216** (8.84)	0.258** (8.14)					
Gender X VET orientation (<i>Ref. Female X VET not workplace-based</i>)							
Female X VET also workplace-based		-0.0815+ (-1.81)					
Female X No VET (Low education)		-0.249 (-1.36)					

Female X No VET (High education)	-0.0847* (-2.20)			
Worked during education (Ref. No or < 1 mo./yr.)		0.790** (43.58)	0.773** (32.03)	
Gender X worked during education (Ref. Female X No or < 1 mo./yr.)				
Female X worked during education			0.0353 (1.09)	
Occupational groups (Ref. Unskilled)				
Skilled manual			0.216** (6.09)	0.179** (4.29)
Skilled, routine services			0.147** (4.38)	0.0403 (0.95)
High-skilled services			-0.0323 (-0.86)	-0.0629 (-1.32)
Gender X Occupational groups (Ref. Female X unskilled)				
Female X skilled manual				0.0305 (0.37)
Female X skilled, routine services				0.249** (3.62)
Female X high-skilled services				0.123+ (1.67)
Type of contract first job (Ref. permanent contract)				
Temporary contract				-0.194** (-10.17)

RAND Europe

Self-employed							-0.302** (-7.43)
Family worker							0.308** (4.67)
GDP per capita (logged)	2.780** (43.64)	2.779** (43.62)	2.666** (42.55)	2.666** (42.55)	2.834** (44.55)	2.833** (44.54)	2.830** (44.62)
Country dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	-26.46** (-46.15)	-26.48** (-46.18)	-25.90** (-45.94)	-25.89** (-45.92)	-26.87** (-46.91)	-26.81** (-46.79)	-26.65** (-46.72)
$\ln(\sigma_u)$	0.361** (22.70)	0.360** (22.66)	0.310** (19.40)	0.310** (19.40)	0.381** (24.24)	0.380** (24.13)	0.374** (23.72)
Person-period months	357148	357148	357148	357148	357148	357148	357148
Persons	44660	44660	44660	44660	44660	44660	44660
Countries	29	29	29	29	29	29	29
Degrees of freedom	36	39	34	35	36	39	36
Rho	0.466	0.466	0.453	0.453	0.471	0.471	0.469
Log-likelihood	-122642.5	-122639.1	-121867.4	-121866.8	-122764.1	-122750.7	-122730.9
AIC	245361.0	245360.3	243806.8	243807.6	245604.2	245583.3	245537.7
BIC	245770.9	245802.5	244195.1	244206.7	246014.0	246025.5	245947.6

Source: EU-LFS AHM 2009, authors' calculations.

Notes: T-statistics in parentheses, * $p < 0.10$, * $p < 0.05$, ** $p < 0.01$

6. Conclusions

6.1. Summary of main findings

Although women have made considerable gains in educational attainment, they continue to have unequal labour market outcomes (Charles & Bradley 2002; Reimer & Steinmetz 2009). Isolating gender differences in the transition from school to work and examining why these differences emerge help us to get one step further in solving this puzzle. The aim of this report was to examine and compare the differences between men and women in the transition from school to work across Europe. A secondary goal was to understand why women's higher level of educational attainment does not appear to pay off in the labour market.

To achieve this goal, we analysed the 2009 Ad Hoc Module (AHM) 2009 'Entry of Young People into the Labour Market' of the EU Labour Force Survey which includes detailed information about the school-to-work transition of around 60,000 young men and women from 29 European countries who left the educational system between 2004 and 2009. We supplemented this individual-level data set with time-varying country-level information on the youth to adult unemployment ratio and employment protection legislation as obtained from Eurostat and the OECD, which allowed us to estimate multilevel (random and fixed effects) event history models of the school-to-work transition.

The main findings can be summarised as follows:

General findings

There is **considerable cross-national variation in the speed of entering a first job after leaving formal education** across the 29 countries. Youths in certain countries have substantially longer transition periods: Italy, Malta, Greece, Spain, Bulgaria, Estonia, Romania, Hungary and the Czech Republic. Countries with the shortest job search periods for youth include the Netherlands, Iceland, Denmark, Norway and the United Kingdom.

Men and women have a similar speed of transition to their first job only in the first few months after leaving education. After this time, the differences between men and women continue to diverge, with men having a higher likelihood to find a first job than women across all time periods. Overall, in **comparison to men, women have a significantly slower transition to their first job.**

Impact of country-level institutional factors

Youths who leave education during economic periods of high youth unemployment (relative to adult unemployment levels) are at a considerable disadvantage and take longer to find their first job.

Each one-point increase in the difference in the youth to adult unemployment ratio lowers the chance of finding a first job by 26.2 per cent.

Higher levels of EPL (employment protection legislation) restrictions (either temporary or permanent contracts) result in a significantly slower transition to first job. A stricter regulation of temporary contracts inhibits youth to enter the labour market more rapidly.

6.1.1. Impact of individual-level factors

Educational level:

Women are overrepresented in the highest levels of education in all European countries.

Education has a protective effect on youth. Youths with the **highest level of education make a considerably faster transition to first job**, followed by those with medium levels of education and those with lower secondary levels of education making markedly slower transitions.

Women who have the highest level of education have a faster transition to first job than those in low or medium levels of education. **In comparison to men however, both higher and medium and low-educated women fare slightly worse.**

Educational field:

Women are underrepresented in the general, engineering, manufacturing and construction, agriculture and to a lesser extent in health and welfare fields. Conversely, **women are overrepresented** in all other types of education, and particularly teaching and education, humanities and arts, social sciences, business and law, sciences and services.

There are **no significant differences in the speed of job entry between women who studied within more female-typical fields** of education with general education, humanities and arts and health and welfare.

When women study male-typical fields, they have significantly slower entry into the labour market.

Vocational Educational Training (VET):

Youths with VET that is at least partially workplace-based make a more **rapid transition** into starting their first job and particularly those who have **no VET and higher education have slower transitions** to first jobs.

The **positive impact of workplace based VET orientation is largely driven by young men.**

Employed during formal education:

Those who **worked during formal education have a markedly higher rate of job entry**, with no significant gender differences.

Association with parenthood:

Although we do not directly model causality in this report, **men who have co-resident children make more rapid transitions** into their first job, **with the exact opposite effect is true for women.**

Compared to fathers, mothers are significantly less likely to have made a rapid transition to first job. When we compare women with and without children, we also see that those without children have markedly faster transitions. This strong effect demonstrates that work-life conflict already penetrates the early labour market experiences of young women.

First occupation:

Youth in skilled manual and skilled-routine services have significantly faster transitions to first jobs.

This positive effect is largely driven by female skilled workers in routine services. This suggests that it is the unskilled male workers that fall behind in finding a first job quickly, connecting to our earlier observations on the protective effect of higher education.

Type of contract:

In comparison with youth that had a permanent contract, those who enter into a **temporary contract or as a family worker start their first job earlier**. Conversely, the **self-employed experience a longer period between leaving school and starting their first business**. We also examined the impact of contract type by gender, with no significant differences.

6.2. Limitations and future research

One issue not examined in this report is the fact that youth may remain longer in full-time education instead of facing an uncertain labour market (Rice 1999). This avoidance of the labour market may be present, which in turn could result in youth with higher qualifications in the long term.

Furthermore, research has noted that many young people are only able to enter the labour market via part-time and other non-standard work (ILO 2012b). Young people might enter employment in a way that might not initiate a long-term investment and attachment to the labour market, as it falls short of young people's aspirations. Given the constraints of the AHM, we were not able to further investigate this issue.

Another important aspect is whether there is a mismatch between educational field and first occupation. The quality of the first job match (i.e. degree of fit between the acquired and required skills) determines the longer-term earnings and labour market success. If a youth works within a job that is not a good match, her or his skills are under-utilised. It was not possible, within the auspices of this report to also examine employment mismatch or how the further labour market careers of youths developed.

6.3. Policy recommendations

The employment situation of young people has been brought to the front of the policy agenda in recent years (Biavaschi et al. 2012; Brenke 2012; Eurofound 2012a; European Commission 2011b, ILO 2012a, b, Eurofound 2012b, OECD 2010, 2011a, Quintini & Manfredi 2009). High youth unemployment rates in many countries (ILO 2012b), a growing share of young people neither in employment, education, or training (NEETs) (Eurofound 2012b), and concerns about young peoples' chances to enter stable,

permanent employment (OECD 2011b) highlight the importance of a fast school-to-work transition in the European Member States.

Several issues have arisen in the existing literature and within this report that allow for a successful school-to-work transition and highlight the importance of gender. First, we demonstrate that although women appear to outperform men in the highest level of education in many countries, this does not generally translate into higher labour market returns. We ascertain that one important factor explaining this disparity is the **highly gendered differences in the field of educational study which translate into different labour market outcomes**. Women are more likely to study fields related to teaching and education and health welfare, but also humanities and the social sciences and are less likely to engage in the fields of the life and physical sciences, engineering, manufacturing and construction. This suggests that the field of education is extremely important in labour market success and young women, parents, and educational institutions should continue to be aware of the long-term life course and labour market path attached with particular educational orientations. However, our results demonstrated that women make headway and get a job faster when they study in the more classic female educational fields of teaching and education and healthcare jobs. They also seem to enter occupations more rapidly than men in skilled routine services. Previous research has demonstrated that women across multiple countries opt for these educational fields due to the fact that they can foresee combining them with work-family duties and building a family (e.g. Van Bavel 2010; Begall & Mills 2012).

A second, strongly related, policy implication is that **the impact of parenthood on the speed of finding a first job remains an important and highly gendered outcome**. Across all countries, in comparison to both fathers but also women who do not have children, young women with children take considerably longer to find a first job. It is therefore clear that the ability to combine parenthood and employment, particularly for young women, remains an important policy issue. Policy needs to provide better structural opportunities for reconciling work and family life, such as more formal childcare.

Third, our results highlighted the **importance of the influence of the strictness of employment protection legislation (EPL) and the relationship with temporary contracts**. We were able to show that youth who enter employment via a temporary basis were indeed substantially faster in their transition compared to those who found a permanent contract for their first job. We were not able to study other aspects of the quality of their first job or their further careers over the life course; however, for getting young people into first employment, temporary contracts appear to be a helpful device. This, again, is notwithstanding any other negative consequences that have been suggested in the literature (ILO 2012b) for temporary employment.

Against the backdrop of mixed findings of earlier research on the effects of employment protection legislation (EPL) has produced (Noelke 2011), our analyses showed that EPL protecting both temporary and regular employment have a substantial detrimental effect on young peoples' school-to-work transition. Young people on the labour market appear to be a vulnerable group that does not benefit from EPL. Possible reforms of EPL could redress this imbalance between the interests of groups on the labour market and those who are entering it.

A fourth policy implication is that our results showed that **vocational training with a workplace-based component is an important lever of getting young people into paid employment**. Continued support of such systems where they exist (e.g. Germany, Austria) and moves to establish such systems in countries where they are less prevalent (e.g. the UK) require the involvement of all social partners. A related finding was that any type of employment during formal education results in a markedly higher rate of job entry, suggesting that combining employment with education could be an additional policy focus. In future research, it would be important to determine what type of employment this was and whether it is eventually related to their specific first job or skills that would be required in this respect.

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Appendix A. Detailed information regarding the analysis

This Appendix provides a brief description of decisions that were made during the analysis in relation to missing cases, inconsistencies or problematic issues for the analyses in this report. If certain variables are not mentioned in this Appendix it is due to the fact that no irregularities were found or comments or imputation was not required. The Appendix concludes with a more detailed description of the statistical analyses used in this report and the motivation for adopting these methods.

A.1. Description of variables used in the analysis

Time of leaving education system

In the original variable, roughly 9,000 cases had failed to report a month for when they had left the educational system for the last time. In order not to lose the yearly information, and following common decisions made within this type of analysis, all missing months cases were imputed to June (6). Various sensitivity analyses concluded that this imputation of monthly values had no significant impact on the results shown in this report.

Time of start of first job

Respondents who had indicated in the main interview that they were currently working in their first job did not have to answer the questions about the first job in the 2009 AHM. These are ~60,000 respondents in our sample of interest. The information about the first job, however, could be taken from the main LFS 2009 questionnaire interview. However, for the question about the time of taking up the first job, the following problem arises: in the main questionnaire, respondents working in their current job for more than two years were not asked about the month when they started working in their current job. In sum, this means that AHM respondents who are still working in their first jobs and do so for more than two years at the time of the interview did not report the month when they started working. This applies to quite a substantial number of respondents (~40,000). To deal with this issue, we imputed cases without any recorded month to September (9). This procedure is slightly more refined, but similar to how Eurostat has dealt with similar problems. According to the EU-LFS User Guide (2011, 54), Eurostat rounds down cases where months are missing to full years when calculating job tenure ('STARTIME') with the current employer. Various sensitivity analyses concluded that this imputation of monthly values had no significant impact on the results shown in this report.

Length of search for first job and negative cases

A variable was created based on 'ahm2009_jobstart' and 'ahm2009_stopdate', as well as 'intdate' to identify right-censored cases. The issues related to the need to impute missing monthly dates was described previously and also influence this variable. This variable also has a considerable number of negative cases, or in other words that respondents reported a negative number of months that they spent looking for a job. An analysis of these negative values revealed that: 13 per cent of respondents between 15 and 34 years of age report negative values for job search duration. On average, respondents with a negative job search duration report a job search duration of -34 months (median = -23 months, SD = 35 months). To determine whether this number is real or an artefact of the data, we engaged in various analyses, which are now shown below and described in detail. Table 8 shows the difference between positive, negative and missing values of job search duration by the orientation of the highest level of formal education attained.

Table 8: Positive and negative job search duration by ahm2009_hatvoc

Orientation of the highest level of formal education attained	Job search duration			
	Pos.	Neg.	Miss.	Total
General education	32.55	16.09	58.53	43.99
VET, school-based	14.32	8.69	5.30	9.58
VET, school and workplace-based	8.67	9.72	2.75	5.88
VET, workplace-based	1.84	2.28	1.39	1.65
VET, no distinction possible	14.11	20.56	5.63	10.45
(9) NA (ISCED 0-1)	4.10	1.00	9.49	6.50
(9) NA (ISCED 5-6)	23.96	41.49	13.93	20.29
() Missing	0.45	0.16	2.98	1.66
Total	100.00	100.00	100.00	100.00

Note: VET = vocational education and training.

Table 8 reveals that more than forty per cent of those reporting negative job search durations are highly educated (ISCED 5–6). In terms of methods, this speaks against large-scale misreporting on behalf of the respondents; and substantively, this points to university students mixing employment with their studies.

Similar checks with other variables show that those reporting negative job search duration are predominately employed full time with a permanent contract (56 per cent, cf. 46 per cent for those with job search duration ≥ 0 months). Table 9 suggests that those with negative job search duration have somewhat better first jobs when compared to those with job search duration ≥ 0 months.

Table 9: Positive and negative job search duration by ahm2009_jobocc1d

Occupation of the first job	Job search duration		
	Pos.	Neg.	Total
Legislators, senior officials, and managers	2.88	4.15	3.08
Professionals	11.53	14.60	12.01
Technicians and associate professionals	13.31	17.51	13.96
Clerks	10.47	11.15	10.58
Service workers and shop and market sales workers	21.21	22.08	21.34
Skilled agricultural and fishery workers	3.38	2.38	3.22
Craft and related trades workers	17.88	15.08	17.45
Plant and machine operators and assemblers	8.21	4.99	7.71
Elementary occupations	10.29	6.92	9.77
Armed forces	0.84	1.13	0.89
Total	100.00	100.00	100.00

When looking at Table 10 we can clearly see that those with negative job search duration were much more likely to have worked during education.

Table 10: Positive and negative job search duration by ahm2009_workeduc

Work during studies in formal education	Job search duration		
	Pos.	Neg.	Total
0 No work or work less than 1 month per year	64.63	25.54	59.55
1 Work (only) as part of educational program	11.55	17.07	12.27
2 Work while studying but outside educational program	15.37	33.06	17.67
3 Work (only) during an interruption of studies	1.78	2.39	1.86
4 Work as combination of 1 and 2	4.81	11.11	5.63
5 Work as combination of 1 and 3	0.28	1.49	0.44
6 Work as combination of 2 and 3	1.02	6.23	1.7
7 Work as combination of 1, 2, and 3	0.55	3.12	0.88
Total	100.00	100.00	100.00

The evidence therefore seems to suggest that those with a negative job search duration are in fact legitimate answers and that these individuals seem to have had a head start onto the labour market rather than given misleading answers.

A.2. Statistical techniques used in the analysis

A.2.1. *Description of analytical methods*

Since the central outcome or dependent variable examined in this report is the duration in months from leaving education to first job, we engaged in the most appropriate statistical techniques to conduct these analyses, which is the use of survival and event history models (Blossfeld et al. 2007; Mills 2011). This is a collection of statistical methods that appropriately models the duration until the occurrence of an event (i.e. transition to first job). The models allow us to appropriately examine the duration or speed that youths take to make the transition to first job.

We first show some basic descriptive statistics and differences between groups and countries. We then plot differences between groups using the more accessible graphical form of failure curves, which is a plot of 1 – the survival function estimates by each month from leaving school to first job, controlling for important covariates (see

Box 2). In order to determine whether these differences are statistically significant and to control for other related factors in a multivariate manner, we then estimate a series of discrete-time (random effect) regression models. The data has a multilevel structure due to the fact that individuals are both nested in countries, but that the data are also modelled as a monthly person-period format. In other words, the 'clock' of our modelling starts in the month that youth leave the educational system and each line of data for each individual is a month until they either obtain a first job or we stop observing them (i.e. the date of the survey). The fact that we can include individuals who did not make the transition to first job and are not in education or training (i.e., NEETs), is a central advantage of these models. It allows us in other words to take 'right censoring' into account (Mills 2011). This is essential since if we only calculated the mean duration until obtaining a first job only from those 'successful' youth and ignored right-censored youth (i.e. those still without a job at the time of the survey), we would incorrectly estimate the differences between the groups.

Since the data are arranged in the form of a person-period file, it allows us to match contextual data with the month that youths leave education directly with the unemployment rate of that month in their country. We can then directly model how their chances to enter the labour market change as the time-varying variable of unemployment rate also changes across the time period under examination. The dependent or outcome variable of the transition to first job therefore is a simple dichotomous outcome that distinguishes between those who made the transition to first job (1) and those who did not (0). Specifically, the models are in the form of discrete-time complementary log-log (random effects) models, which take into account the nested structure of the data (Allison 1982, Mills 2011). The discrete-time hazard function measures the probability that youths start their first job during a particular month (interval t), conditional on the fact that they did not experience employment before t). We have opted for a complementary log-log (cloglog) model. The model is a random intercept model since individuals have monthly multiple records (i.e. each line of data represents one month for each individual from leaving school to first job or censoring).

Since the data contain information on individuals who live in 29 different countries, we do not only have the multilevel structure of months, but individuals are also clustered or embedded within 29 countries. Time constant country variance is accounted for by including country dummies into our equations. We have not reported the coefficients of the country dummies in the models, but they are available upon request.

The variables estimated at both the individual (e.g. gender, age) and country level (e.g. GDP, EPL) are assumed to be fixed, including the country variable itself, since countries are entered as dummies into the model. The level-1 (months for each individual) intercepts and slopes are thus assumed to vary randomly across groups. The random coefficient means that a level-2 predictor such as gender, for example, is used to predict the likelihood of job entry in each month in each individual. It is termed 'random' since the intercept values for the likelihood of job entry at each month within each individual are assumed to be a sample of the intercepts from a larger population of individuals.

We have opted to enter the country variable as a fixed- and not random-effect due to the growing consensus among experts of panel data analysis that it is generally preferable to adopt a fixed-effect model (Halaby 2004, 517–22; Allison 2009: 2–3). As Allison (2009) argues, the main difference between

random- and fixed-effects models is the structure of the associations between the observed and unobserved variables. The unobserved variables in a random-effects model are assumed to be uncorrelated with or statistically independent of all of the observed variables. In a fixed-effect model, unobserved variables can have any associations with the observed variables, which allow it to control the effects of the unobserved variables.

A.2.2. Description of youths who did not yet acquire a first job

As already described at the end of Section 2 and in Box 4, it is important to note that the group of ‘right-censored’ youths, or youths that did not yet successfully find a first job may be diverse, ranging from the unemployed who are currently actively seeking a job to women who have opted to remain home and adopt a domestic role and are thus not actively seeking work. Unfortunately, due to the data restrictions, it is not possible to definitively disaggregate this group further.

With further analysis we can partially isolate, however, who these individuals who never found a first job might be. We do know what the main activity status of youth from leaving education before starting their first job (‘transact’), but the group we would like to examine never found a first job. Therefore, from using information on their current labour market status, we can gain some insight into this group. In the main questionnaire, the current main labour market activity status (‘mainstat’) allows us to isolate those who are not currently in employment and have never found a first job. We can then look at the reason why they are not currently seeking a job (‘seekreas’) by whether they had ever had a first job.

Table 11 shows that of those who are currently inactive or unemployed in the labour market, many attribute it to factors such as further education or training, but also the need to look after children or other personal or family responsibilities. It is for this reason that we included whether individuals had children in the regression models in the main analysis. The table also shows that there is a relatively large group of discouraged youth who believes that no work is available, with the largest group stating ‘other reasons’, making it difficult to definitively determine the real underlying reason.

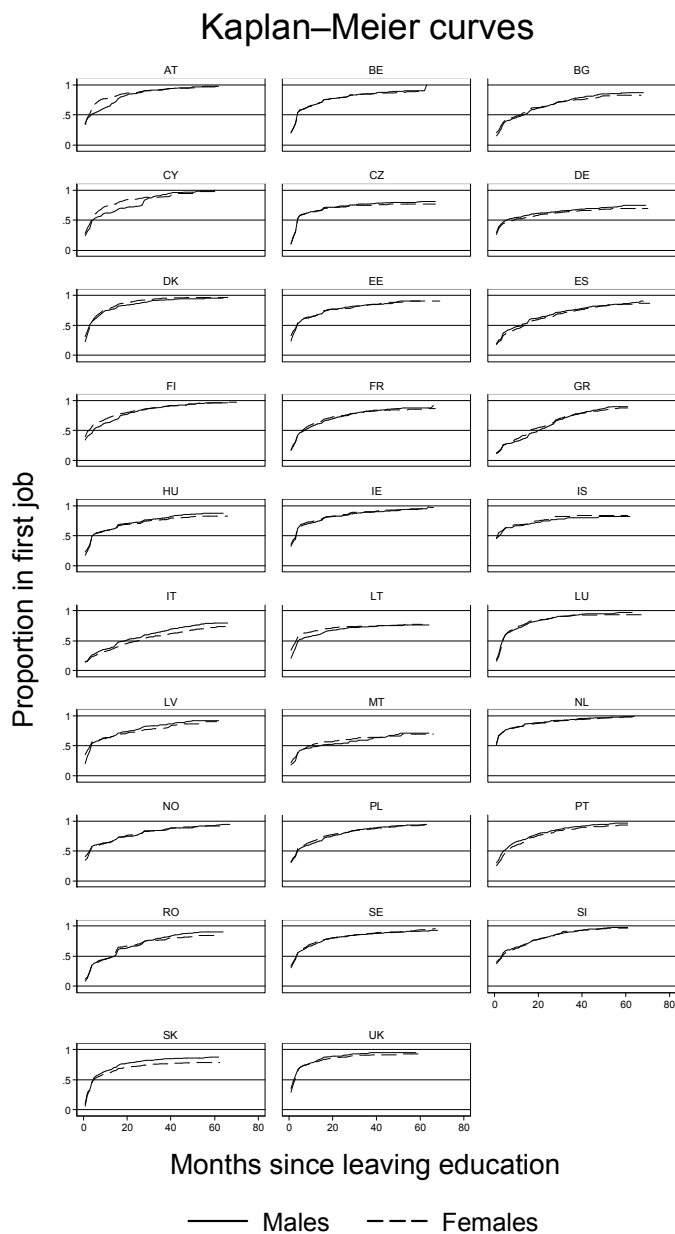
Table 11: Reason youth is not looking for work of those who are currently unemployed or inactive at the time of the survey by whether they had ever obtained a first job, 29 European countries

Reason not looking for work	No first job		First job		Total
	N	%	N	%	N
Laid-off awaiting recall	22	0.5	40	2.6	62
Own illness	448	9.5	110	0.2	558
Looking after children/ adults	671	14.2	600	1.3	1,271
Other personal or family responsibilities	557	11.8	172	0.4	729
Education, training	815	17.2	120	0.3	935
Ended business	21	0.4	8	0.0	29
Believe no work is available	652	13.8	127	0.3	779
Other reasons	1,548	32.7	369	0.8	1,917
Total	13,702	100	1,546	3.3	60,380

Source: EU-LFS AHM 2009.

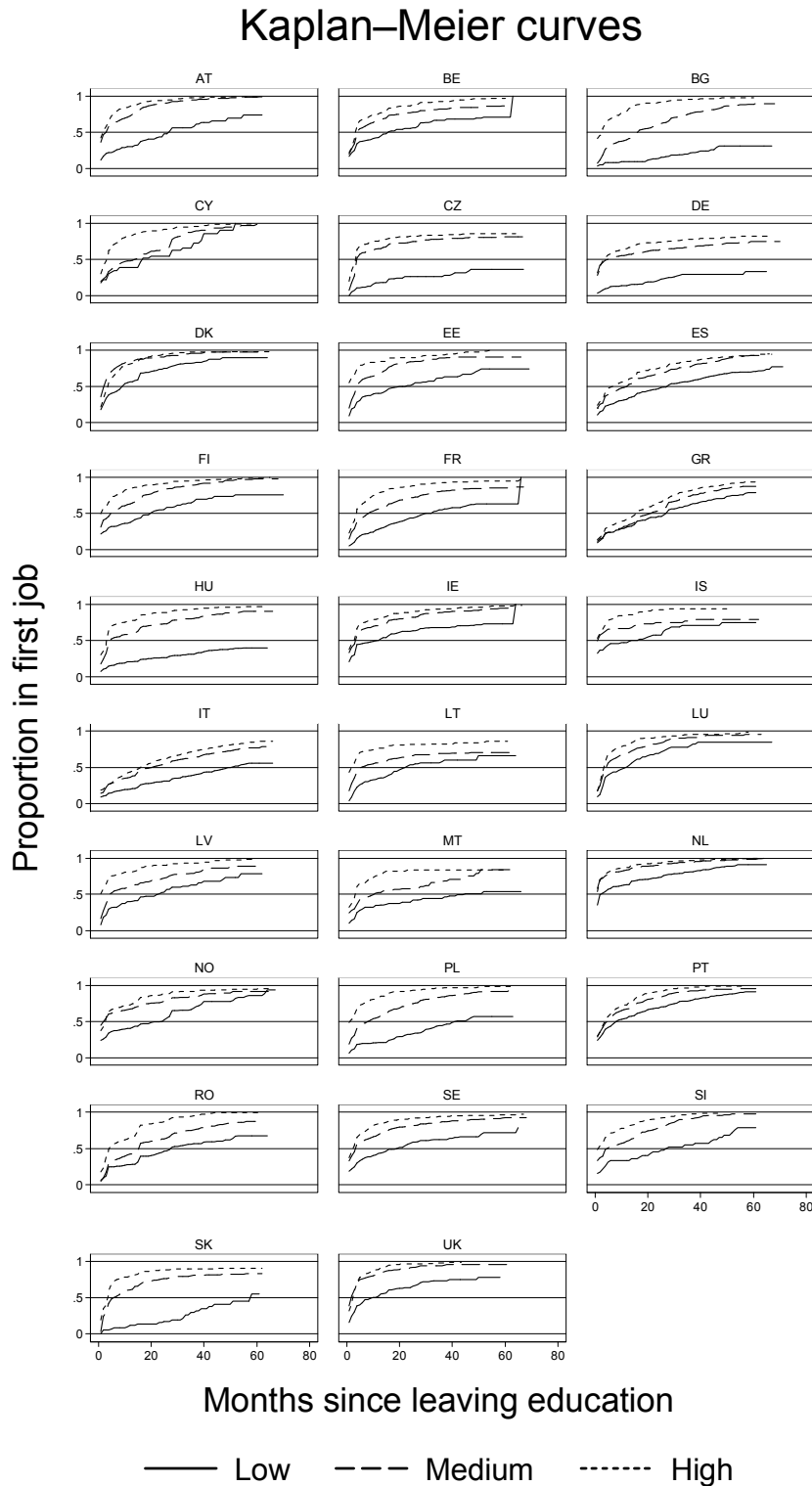
Appendix B. Additional analyses

Figure 21: Transition from school to work by gender, 29 European countries



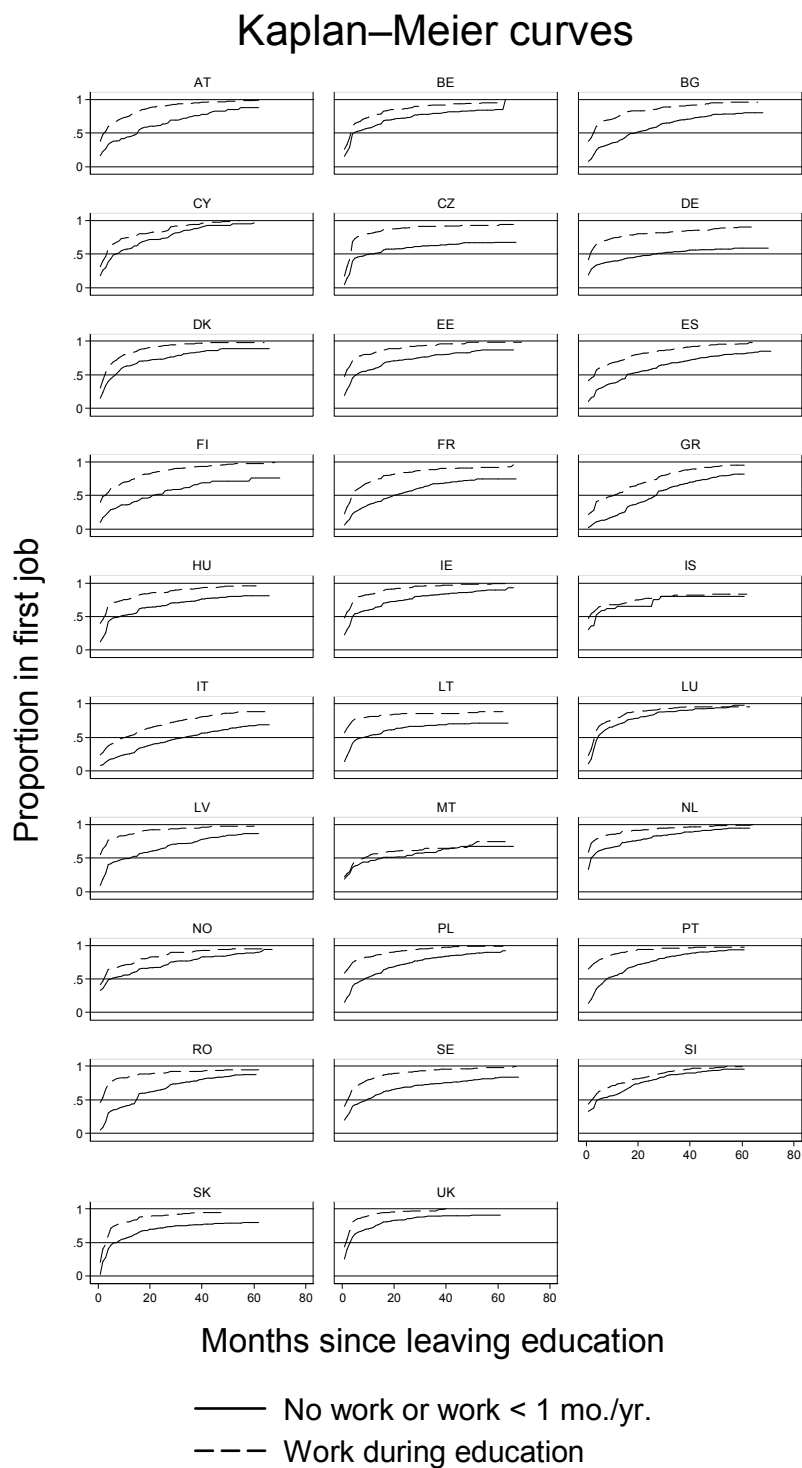
SOURCE: EU-LFS AHM 2009 (weighted), authors' calculations.

Figure 4: Transition from school to work by educational level, 29 European countries



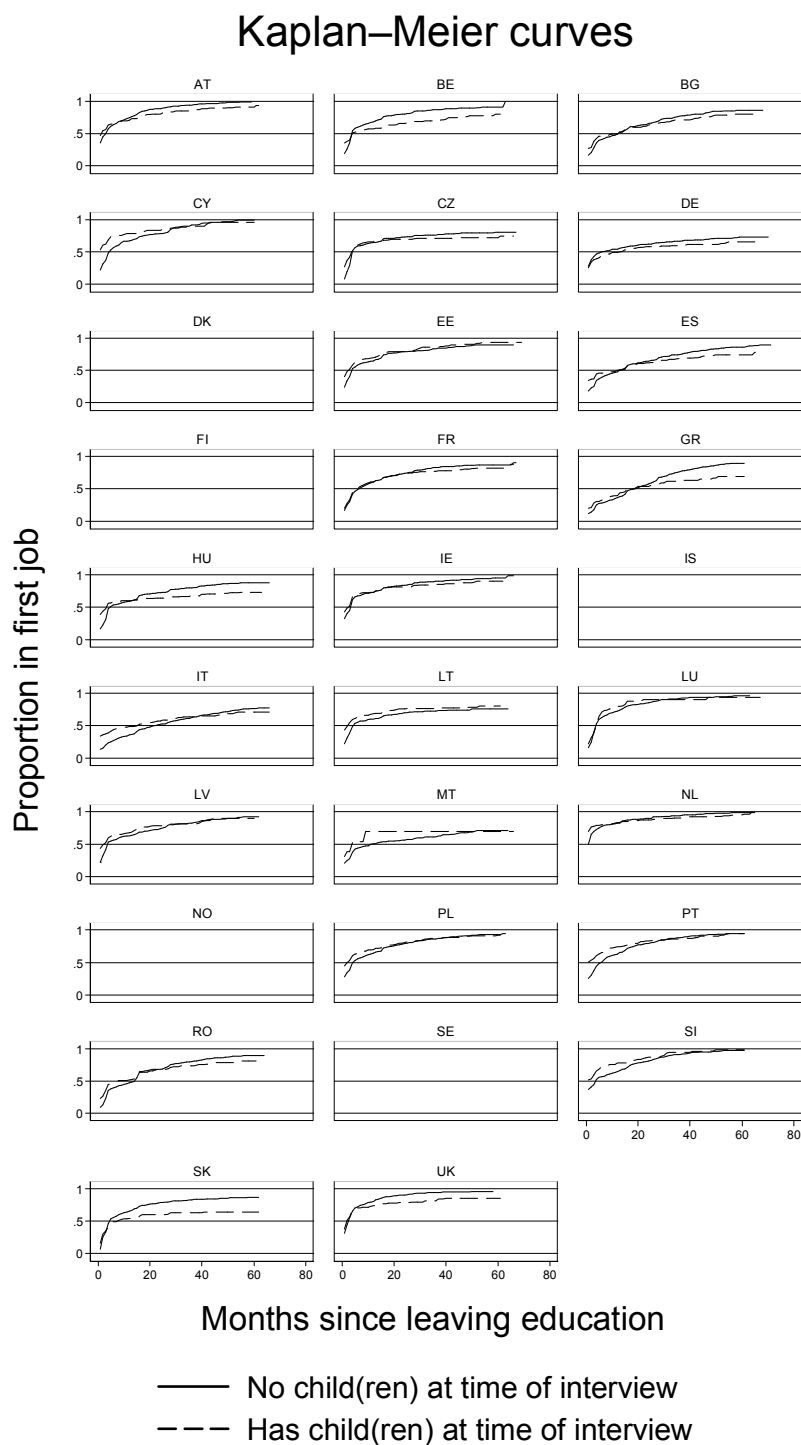
SOURCE: EU-IFS AHM 2009 (weighted), authors' calculations.

Figure 5: Transition from school to work by work status during education, 29 European countries



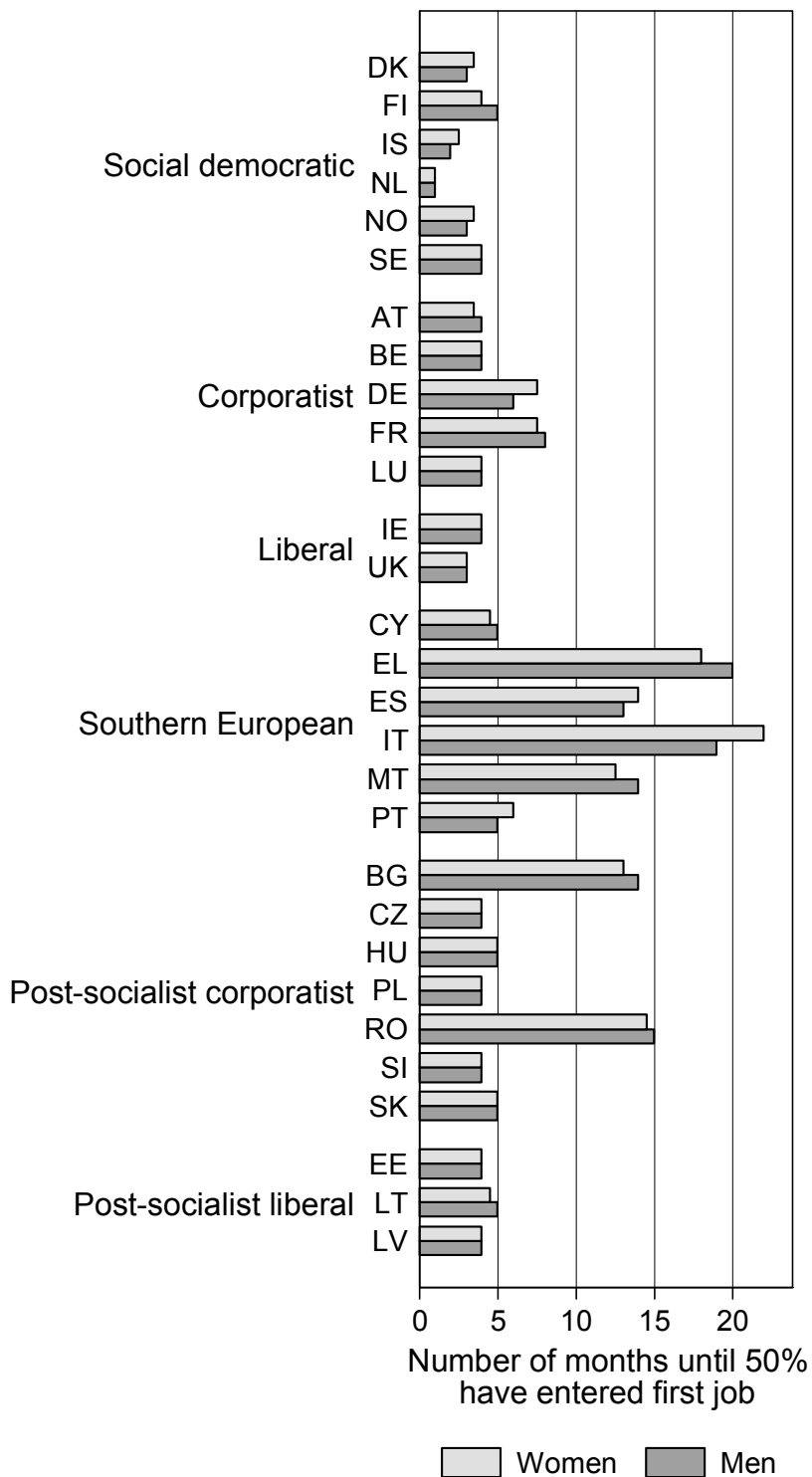
SOURCE: EU-LFS AHM 2009 (weighted), authors' calculations.

Figure 24: Transition from school to work by presence of children, Women only, 29 European countries



NOTES: DK, FI, IS, NO and SE: No households information available.
 SOURCE: EU-LFS AHM 2009 (weighted), authors' calculations.

Figure 256: Number of months until 50 per cent have entered the first job, by welfare regime



SOURCE: EU-LFS AHM 2009 (weighted), authors' calculations.

