Does Gender Matter in Lifelong Learning Activity? [1]

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Abstract

Development and maintaining skills in a life course through various lifelong learning activities is crucial to sustain employability, particularly in the context of longer working lives and more competitive economic environment. In the paper we investigate the determinants and obstacles in lifelong learning from a gender perspective. Based on the results of Labour Force Survey and Adult Education Survey we investigate the extent educational activity of adults in Europe as well as look barriers and obstacles to lifelong learning. Using logistic regressions we identify probabilities of participating in education or training depending on individual characteristics such as gender, age, education or labour market status, which indicate that age, educational attainment, but also labour market status, occupation and sector of employment influence the probability of participation in lifelong learning. We indicate difference resulting from individual and sector of employment characteristics on probabilities of participation in formal education and non-formal education (training). We show that in participation in education or training gender plays an important role in some of the countries, but it is not common for EU in general. If we look at reasons for resignation from LLL activity, women more frequently report personal or family-related barriers and obstacles in such activity. Based on the research outcomes we recommend the need to develop practices enabling women to overcome these barriers to promote their skills development.

Keywords: lifelong learning, gender, labour market

JEL Classification: J16, J24, J40

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Introduction

Human capital is one of the most important drivers of economic growth in Europe and worldwide. To maintain competitive advantage and face pressures rising from developing economies such as BRIC countries, the European population needs to acquire and maintain high-quality skills. Lifelong learning strategies are key component of policies for employability and competitiveness as well as social inclusion and active citizenship. The need to maintain high levels of human capital becomes important to face both challenges of the economic crisis, as well as adopting to long-term challenges resulting from globalization, demographic change and technological development.

In a very simplistic form, we may defined human capital as a size of population adjusted for their health and skills levels. With population numbers declining, due to the demographic processes, it is important to focus on the quality of human capital, i.e. health and skills. The latter should be viewed not only from the perspective of initial skills formation during the youth and adulthood, but also in the perspective of adult life course.

In the paper we focus on the assessment of the impact of individual characteristics, such as gender, age, education, labour market status on probabilities of life-long learning. The most important innovation of our research approach is the combination of demographic characteristics of individuals with labour market status, as well as sector of employment and occupation. We also use LFS data for modeling, which allows to separate the impact of analysed individual characteristics on probability of formal and non-formal learning.

The need for life-long and life-wide learning for skills development becomes acknowledged both in the literature (Cross, 1981; Evers, Rush, & Berdrow, 1998; Field, 2006) and in international policy discussion. While in the 1990s it was treated as a “policy fashion”, currently it becomes a necessity. OECD Skills Strategy published in 2012 “Better skills, better jobs, better lives” (OECD, 2012) underlines that skills become currency of the 21. century. Individuals develop their skills in different ways: in education or at work. Initial results of the PIAAC Survey trial indicate, that people in their mid-twenties develop skills while in education and in work, but those who are neither in employment, education or training are at risk of skill loses (OECD, 2012: 28) Thus, it is important to take into account the life-course context.

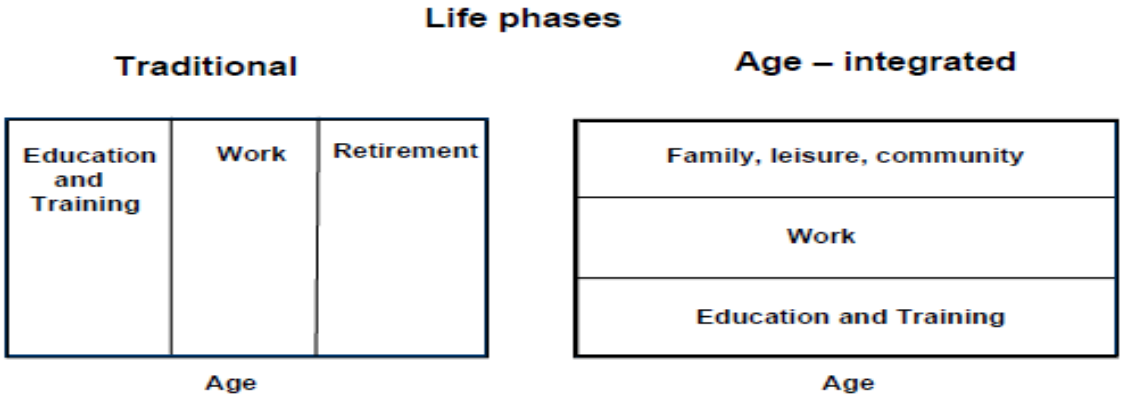
The European Council conclusions from May 2009 on a *Strategic framework for European cooperation in education and training* (‘ET 2020’) underlines that efficient investment in human capital through education and training systems is an essential component of Europe's strategy to deliver the high levels of sustainable, knowledge-based growth and jobs. Increase of adult learning is one of the key challenges for the lifelong learning strategy, which is reflected in setting the target level of average participation in lifelong learning at 15% by 2020 for adults aged 25-64. In 2011, the EU average participation was 8.9%, with significant variation between countries (from 1.2% to 32%) and within countries, with various factors such as age, educational attainment, gender, occupation or sector of employment explaining this variation.

The distinction between individual and social factors which influence skill development can be situated in the context of Giddens' (1984) *theory of structuration*. The central notion is that individuals are recognized as agents who make choices and decisions which affect their behaviour and opportunities relating to their skill development. But while many individuals in modern societies have the benefit of exercising their agency and are able to select paths to follow, their choices are

always contingent on the opportunities and constraints of culture and social structures. (Desjardins & Warnke, 2012: 10).

In the context of demographic change, investment in the quality of human capital through LLL is crucial. There is a need to shift towards an age-integrated perspective with continuous activities on education and training in the life course, as illustrated in Figure 1. In an integrated life course perspective, different forces are affecting the career choices and mobility of women compared to men, and these are also changing over time.

Figure 1. Active age – integrated life course



Source: (Reday-Mulvay, 2005)

The tension to reconcile work, family and education appears at different stages of the life course. They are particularly important at early stages of adult life, when young people face the need to move from school to work as well as they start to form their relationships and families. But, it is also a challenge in further life course development, as individuals are expected to work more intensively and longer due to increases of retirement ages (Chłoń-Domińczak, 2013; OECD, 2011a), which means that they need to update their skills while at the same time they are faced with the demand for care from their elderly parents or grandchildren. A broader view is needed to acknowledge various learning paths, including non-formal and informal learning. Women learn skills related to care when they care for their children or elderly parents. Their competences can be assessed as a part of recognition of prior learning (RPL) and they can further gain qualifications that can be utilised in the labour market. This is especially important in the case of the market of care services (including long-term care) which is expected to develop due to the population ageing.

Reconciliation of work, family and educational careers is challenging, particularly for women who are nowadays expected to be more involved in employment and work longer, while evidence shows that care provision at all stages of the life course is still more frequently provided by women.

In the paper, we investigate the participation of adults in education and training, in particular what are individual and job-specific characteristics that affect participation in education or training in the EU countries? What is the impact of gender on LLL participation? We answer these questions looking at the results of recent EU-wide surveys, including Labour Force Survey and Adult Education Survey conducted in 2011. We estimate a set of logistic regression models explaining participation of all adults and employees in education or training activities, based on the LFS survey data. The use of the

LFS allows us to distinguish between two types of learning: formal learning in educational institutions as well as training in non-formal education context.

The paper has four sections. In the first section, we present the state of the art, including the review of literature focusing on gender aspects of life-long learning activities as well as main results of the surveys mentioned above related to the participation in lifelong learning activities, obstacles for such participation and reasons for non-participation in LLL from a gender perspective. In the second section we present the modelling approach used in the further analysis and in third section we discuss obtained results. Section four presents conclusions as well as policy and research recommendations.

1. State of the art

In this part we present a short overview of research related to lifelong learning with a gender perspective as well as statistical data presenting the current landscape of lifelong learning activity in the EU, as well as reported barriers and obstacles to LLL participation. Lifelong learning is frequently seen as one of the policy responses to the rapidly changing world aimed at increasing the level of human capital. The structure of demand for skills changes constantly, including rising need for more complex skills, such as communication, ICT or in general ability to perform non-routine tasks. Jobs are also changing fast: many jobs that are recruited for today did not exist a few years ago. Education should adapt to these trends, preparing students for jobs and duties that are yet to emerge. The role of skills is also increasing in the context of rising mobility on the labour market. People tend to change jobs much more often than in the past, frequently in pursue of opportunities for acquiring new skills and competences.

Development of human capital requires investment in people strengthening their skills and capacities and supporting them to participate fully in employment and social life[4]. Such investment should not be seen only as one in education understood in a narrow sense of getting a diploma of initial education, but should have a broader perspective of supporting lifelong and lifewide learning.

Participation in education in training and development of skills have a positive impact on employability and returns from work. (Ok & Tergeist, 2003) using ECHP data for 13 EU countries conclude that participation in training reduces probability of being unemployed, controlling for individual characteristics of workers (such as age or educational attainment). They also point out to the differences in participation in LLL. In particular workers who have already acquired a high level of literacy are more likely to take up further education. Incidence of lifelong learning depends on various factors also related to the labour market: type of work contract, size of the firm where the workers is employed.

Increase in women's human capital development, particularly rising female educational attainment, contributed positively to the economic growth in the past five decades (Thévenon, Ali, Adema, & Salvi, 2012). However, women's participation on the labour market can be still increased in many of

[4] Definition proposed in Social Investment Package:
http://ec.europa.eu/social/main.jsp?catId=1044&langId=en

the OECD countries. Skills development through lifelong learning activity is one of the means that can further enhance labour market participation of women and economic growth.

1.1. LLL and gender perspective in the literature

There is a growing body of literature on development of skills of the adult population through participation in lifelong learning activities. There are two broad approaches of studies related to the lifelong learning in the literature. First, research is focused on explaining participation in lifelong learning as such, assuming that it will improve skills and human capital (Arulampalam, Booth, & Bryan, 2004; Biagetti & Scicchitano, 2009; OECD, 1999). There are also several studies that investigate the impact of lifelong learning on employment probabilities (Jenkins, 2004) or wage levels (Blanden, Buscha, Sturgis, & Urwin, 2010). Some authors investigate also the level of workers' skills compared to requirements on the job (OECD, 2011b; Quintini, 2011).

Initial work on LLL focused much on job-related training. For example, *Employment Outlook 1999* (OECD, 1999: 136) concludes that men and women appear to participate in job-related training at fairly equal rates, although men receive more financial support from their employers. But, due to the less continuous employment and career breaks (i.e. related to childcare periods) in the life course women have on average shorter time spent in education.

Many studies use microdata to assess the impact of individual characteristics on LLL activity as well as further life course. One of the first studies that utilise such approach is the one by (Arulampalam et al., 2004). Based on the European Community Household Panel (ECHP) they assessed the determinants of work-related training in the EU countries, using static random-effect probit models country-specific and gender-specific equations to identify cross-country differences in LLL participation. (Arulampalam et al., 2004) focused on determinants of gender access to lifelong learning subject to various employment characteristics such as fixed term contract, part-time and full-time work, public and private sector, educational attainment and wage distribution prior to learning incidence. They find out that women are no less likely than men to undertake educational activities. On the contrary, in four countries (Spain, Italy, Denmark and Finland) they are considerably more likely to participate in training.

Inequality in workers' lifelong learning across European countries based on the EU-SILC data is measured by (Biagetti & Scicchitano, 2009). They focus on the determinants of workers' human capital accumulation and gender differences in adult educational activity, taking into account heterogeneity across European countries in terms of gender and LLL participation. They also look at the complementarity between past education and training for 21 EU countries, using similar method of estimating equations as (Arulampalam et al., 2004). Following the proposed model (Biagetti & Scicchitano, 2009) estimate regressions for the whole sample and separately for men and women. Individual characteristics included in the estimations are: age, marital status, educational attainment, permanent vs. temporary job, full or part-time contract, recent job changes, size of the company, low vs. high-skilled occupation. Based on obtained results (Biagetti & Scicchitano, 2009) conclude that young, better educated and unmarried workers are more likely to receive formal LLL. As far as gender differences, changes in the probability of formal LLL for most of the independent variables are stronger for men, with exception of past education which has stronger effect among women. Marital status variable is not significant for the entire sample but has stronger relevance among women. Part-time workers are more likely to participate in LLL for men in 10 countries and for

women in 11 countries. Size of the company also shows some relevance: large companies usually train their workers more, while medium sized does not indicate statistically relevant effects.

(Bassanini & Brunello, 2010) develop a model that focused on training intensity at sector level. Their analysis is based on the LFS data for 15 European countries and 11 industrial sectors from 1995 to 2002. They collapse data on training and other variables (education, age, gender and firm size) at the level of sectors for selected industries to obtain the final dataset and estimate association between regulation and training participation and other independent variables, including percentage of females in LLL participation, based on OLS and GLM specifications by QMLE. Their findings indicate that regulatory reforms in Europe raised competition that in turn increased investment in workplace training. Additionally, in sectors with higher share of female workers training participation is higher (at statistically significant level).

The use of sector of employment as explanatory variable is also proposed by (Huber & Huemer, 2009) who investigate gender differences in participation and intensity of lifelong learning in Austria. They use statistical analysis of Oaxaca-Blinder decompositions for non-linear models to analyse the contribution of individual variables to total gender difference in participation and duration of training. Their results indicate that the most important factors affecting LLL participation and intensity are related to the labour market characteristics such as tenure, age, occupation, profession and sector of employment, while household-related variables (marital status, number and age of children) have smaller impact.

Sectorial differences in the intensity of workers' participation in training are also confirmed on the national level. In Poland, the Survey of Competence-Based Human Resource Management indicated that share of workers participating in LLL is higher in larger companies and also those from more knowledge intensive sectors, such as selected services, LLL activity level depends also on companies' practices and approaches in human resource management (Chłoń-Domińczak, Trawińska, & Sienkiewicz, 2013; Sienkiewicz, 2013).

There are also few studies that focus on the results of participation in lifelong learning from the perspective of labour market situation of individuals. The scarcity of such research is caused by little availability of longitudinal data and surveys that would enable to measure such effects. (Jenkins, 2004) on the basis of longitudinal National Child Development Study (NCDS) of people living in Great Britain investigated lifelong learning effect on transition to employment by 2000 of those women who were not in work in 1991. He finds out that, after controlling for various individual-related factors (household-related, age, health, educational status), participation in lifelong learning increased the likelihood of returning to employment. (Blanden et al., 2010) using the 1991-2007 waves of the UK British Household Panel Survey estimate the fixed effects specification with outcomes on earnings and social position[5]. They isolate the role of lifelong learning on these two characteristics. The results suggest that any form of lifelong learning has significant positive returns for men's and women's earnings. Analysis for separate levels of equivalent qualifications, investigating the impact of obtaining higher qualifications level on earnings increase, shows statistically significant return for earnings of men who obtain a level 3-equivalent qualification, while for women the return shows lower significance (only at 10% level). There are no significant outcomes

[5] Measured using CAMSIS scale, derived from multi-dimensional scaling analysis of cross-classified tables representing the occupations of individuals and their spouses or cohabiting partners.

observed for level 4 vocational qualification. Obtaining level 4/5 academically oriented qualification can expect substantial earnings returns in further work career.

Finally, we can look at the link between qualifications and skills and job requirements, to identify the level of qualifications mismatch from gender perspective. (OECD, 2011b) and (Quintini, 2011) estimate marginal effects focusing on determinants of qualification and skill mismatch using probit regression. They use the data from European Survey of Working Conditions in 2005. They indicate that women have statistically significant negative marginal effects on probabilities of over-skilling[6] and under-skilling[7] and positive marginal effects of under-qualification[8] and over-qualification[9]. That means that women's skills are better fit to the labour market needs, compared to those of men, while at the same time female qualifications are more mismatched. Results of the OECD study indicate that participation in lifelong learning can potentially reduce mismatched resulting from formal education process.

The academic literature provides mixed and ambiguous results concerning the gender differences in access to lifelong learning, including education and training. There is more clear evidence that other individual characteristics, such age, educational attainment, labour market status, sector of employment and occupation play more important role in the lifelong learning participation. Furthermore, while lifelong learning in the policy context is frequently referred to as a policy measure that can mitigate the inequalities in skills levels as well as mismatches on the labour market, the literature does not support this direction. Higher incidence of lifelong learning among workers that are better educated, younger and working in occupations or sectors requiring higher skill levels are consistently reported. That means that lifelong learning activity contributes to increasing skills inequalities in the population.

1.2. Approaches to measurement of LLL participation

There are several sources of harmonised lifelong learning statistics. Efforts to collect comparable information have been co-ordinated by the OECD in the International Adult Literacy Survey (IALS) in 1994-1995 and recently in Survey of Adult Skills (SAS) of Programme of International Assessment of Adult Competencies (PIAAC). Eurostat collects information in the European Labour Force Survey (LFS), Survey of Income and Living Conditions (EU-SILC) and Adult Education Survey. In all five examples common tools are used by relevant national statistical offices (or other organisations chosen by the government). Surveys differ, however, in the precise definitions of training activity, the population sampled and in the case of the OECD data also years for which data were collected. The most important differences relate to the way the training questions are formulated. EU-SILC asks for all educational activities in one question (combining formal and non-formal education), while other surveys ask separately about education (formal education) and training (non-formal education). The reference periods also differ. LFS asks for activities over the prior 4 weeks, while remaining surveys refer to past 12 months. Finally, LFS and EU-SILC are conducted regularly (quarterly and annually, respectively), while IALS was conducted in 1994 and 1995, AES in 2007 (as pilot survey) and from 2011[10] as regular survey. SAS (PIAAC) first wave was up-to now a one-time survey conducted in2008-

[6] Worker's skills are above those required by her job.
[7] Worker's skills are below those required by her job.
[8] Worker's highest qualification is lower than one required by her job.
[9] Worker's highest qualification exceeds one required by her job.
[10] It is planned to be conducted every five years.

2013 with results to be available from October 2013. An overview of these approaches is presented in Table 1.

Given the definitions of training participation (in particular separation of formal and non-formal education) and frequency of surveying, for further analysis we use the LFS data.

Table 1. Overview of surveys providing harmonised training statistics

Title	Countries covered	Nature of survey, including degree of harmonization and sample size	Definitions of training participation	Reference period	Comments
The International Adult Literacy Survey (IALS), 1994-1994	12 countries: AU, BE (Flanders), CA, DE, IE, NL, NZ, PL, SE, CH, UK, US	Household survey using a common questionnaire Relatively small sample size.	Took one or more education and training courses for "*career or job-related purposes*".	12 months	Broad definition of training participation may capture a wide range of educational activities, provides unique data on literacy skills.
Survey of Adult Skills (SAS – PIAAC), 2011	1st round (2008-2013) 24 countries: AU, AT, BE, CA, CZ, DK, EE, FI, FR, DE, IE, IT, JP, KO, NL, NO, PL, RU, SK, ES, SE, UK, US 2nd round (2012-2016) CL, EL, Indonesia, IS, LT, NZ, SP, SI, TR	Common questionnaire, adapted to national languages. Relatively small sample size.	Participation in: • formal studies in previous years; • non-formal courses with more detailed description of most recent non-formal activity	12 months	Definition of formal studies and training participation may capture a wide range of educational activities, but allows distinguishing between them, provides unique data on literacy skills and use of skills in the workplace. Results of survey for the first round will be available only in October 2013.
European Labour Force Survey (LFS), quarterly	EU 27 and IS, NO, CH, CR, JP, MK, TR, US	Adapted to Eurostat standard, The LFS sample size is about 1.5 million people every quarter. The sampling rates in each country vary between 0.2% and 3.3 %. It is a continuous quarterly survey.	Persons aged 25 to 64 (excluding the ones who did not answer the question 'participation to education and training') who received education or training	4 weeks	LFS data allows separating formal education from non-formal education activities (participation in training), due to short reference period the data may underestimate the magnitude of educational activity.
EU Survey on Income and Living Conditions (EU-SILC), annually	EU 27 and IS, NO, CH, CR, TR	Adapted to Eurostat standard, the minimum size of the sample of the overall population which is surveyed every year is of: • Cross-sectional data operation: about 130,000	Currently involved in some learning (education or training) programme defined under ISCED-97 as "*an array or sequence of educational activities, which are organised to*	Current involvement	Educational activity may be underestimated due to the used reference time point, narrow understanding, excluding non-formal and informal educational activities which do not lead to predetermined objectives ore

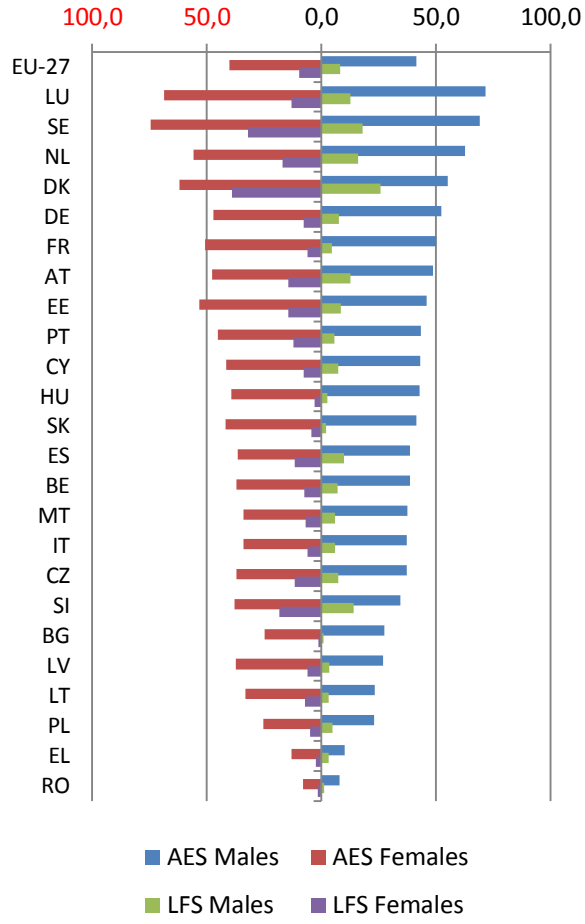
Title	Countries covered	Nature of survey, including degree of harmonization and sample size	Definitions of training participation	Reference period	Comments
		households and 270,000 persons aged 16 and more are interviewed in the European Union countries. • Longitudinal data operation: about 100,000 households and 200,000 persons aged 16 and more are interviewed in the European Union countries.	*accomplish a predetermined objective or a specified set of educational tasks"*		specified sets of educational tasks.
Adult Education Survey (AES), 2007 and 2011	2007 (pilot survey): AT, BE, CR, CY, CZ, DE, EE, ES, FI, FR, HU, LV, LT, NL, NO, SE, SI, SK, UK , BG, EL, IT, PL 2011 (first regular survey): EU 27 and NO, CH, SR	Survey is designed to give detailed information on the participation of individuals in education and training activities.	The whole survey covers participation in education and LLL activities (formal, non-formal and informal learning).	12 months	The survey covers wide range of educational activities, also includes employment characteristics (occupation, sector of employment)

Source: Authors' analysis

1.3. Participation in education and training in the EU

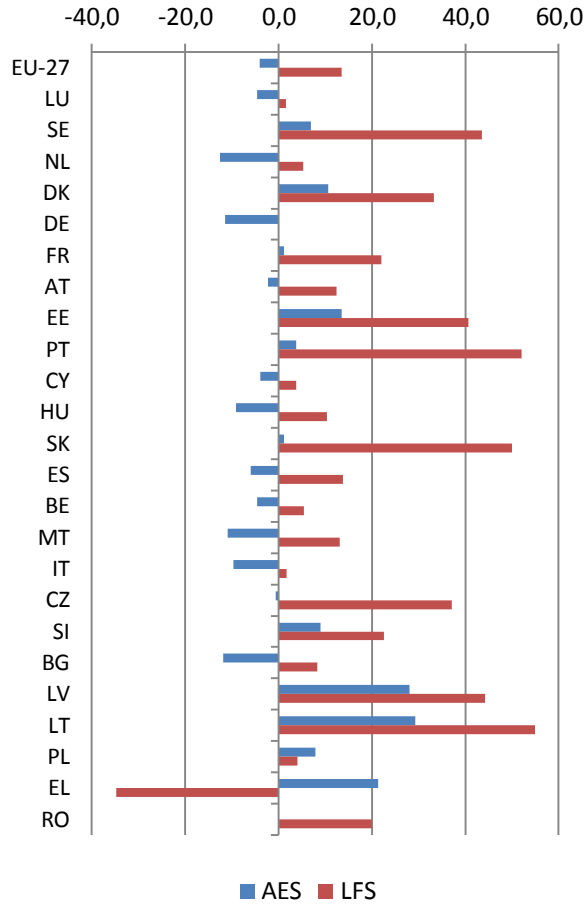
In this section we analyse the results of Labour Force Survey and Adult Education Survey conducted in 2011 related participation in formal and non-formal education from gender perspective. As explained above, both surveys define participation in learning activities in different ways. Consequently, the levels of educational activity observed in AES are higher than those in LFS, which is illustrated in Figure 2. LFS and AES also show differences with regards to the gender gap in participation in LLL, measured as percentage points difference of female and male participation in education and training. As shown in Figure 3, LFS data shows on average positive gender gap (i.e. higher participation of women in education and training), while in the case of AES, in 13 countries the gender gap is negative.

Figure 2. Participation in formal and non-formal education in LFS and AES



Source: Eurostat (extracted on 13.05.2013)

Figure 3. Relative gender gap in participation in formal and non-formal Education in LFS and AES



* Difference in LLL participation of women and men divided by women participation level

Source: own calculation based on Eurostat

There is a strong positive correlation between participation of men and women in LLL within each survey as well as relatively strong one between surveys, which is illustrated in the Pearson correlation matrix below (Table 2). Also the correlation of gender gap between two surveys is relatively high and positive (Pearson correlation coefficient for nominal gender gap measured in percentage points is equal to +0,58 and for relative gender gap +0,39). Analysis of variance for both

LFS and AES data does not indicate that gender differentiates participation in lifelong learning in statistically significant way. Given the above, the use of LFS data to assess the gender seems to be robust enough to be used in further analysis.

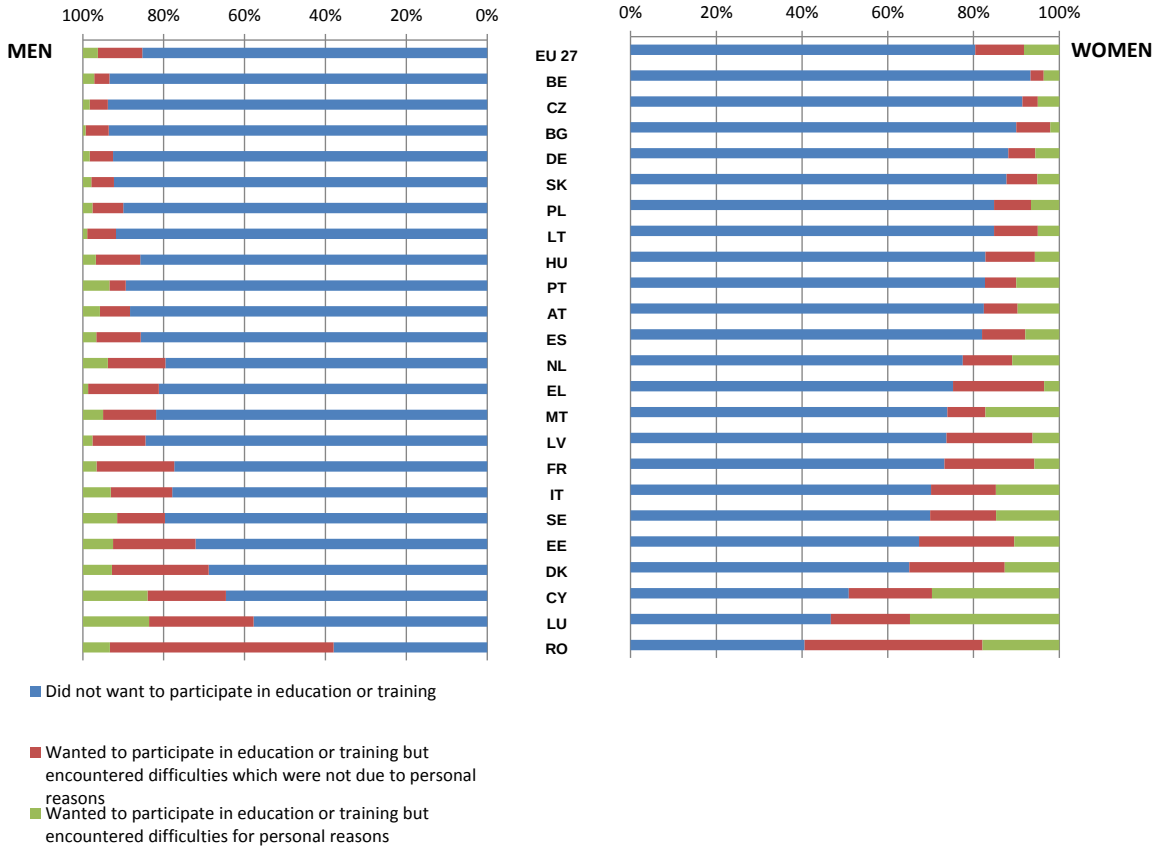
Table 2. Pearson correlation matrix

	AES M	AES F	LFS M	LFS F
AES M	1,00	0,96	0,68	0,62
AES F	0,96	1,00	0,72	0,73
LFS M	0,68	0,72	1,00	0,95
LFS F	0,62	0,73	0,95	1,00

Source: own calculations

Results of the AES also allow observing factors related to no participation in formal or non-formal education. In the survey, respondents were asked for the main reason why they don't take up any form of learning as well as obstacles for their LLL participation. Majority of respondents who are educationally inactive stated that they did not want to (see Figure 4), around 20% of all respondents (EU average) pointed to other reasons. In all countries, women more frequently than men replied that they wanted to participated, but they could not do so due to personal reasons.

Figure 4. Reasons for not participating in formal and non-formal education

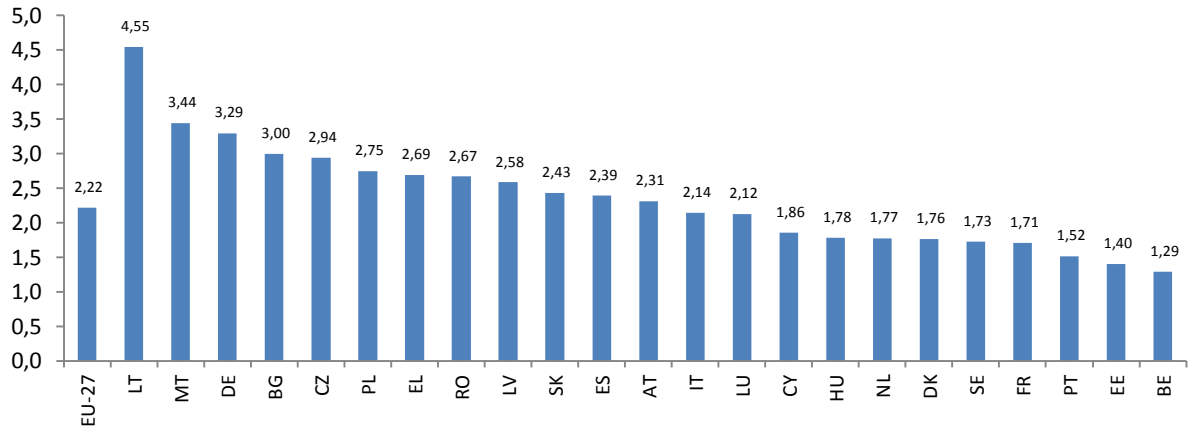


Source: Adult Education Survey, Eurostat (extracted on 13.05.2013)

The gender difference in declaring difficulties to participate in LLL activity due to personal reasons varies across countries, which is shown in Figure 5. Women indicate such difficulties three or more

times more frequently than men in 4 countries(Lithuania, Malta, Germany and Bulgaria) while the female-to-male ratio of this indicator is below 1,5 in 2 countries (Estonia and Belgium).

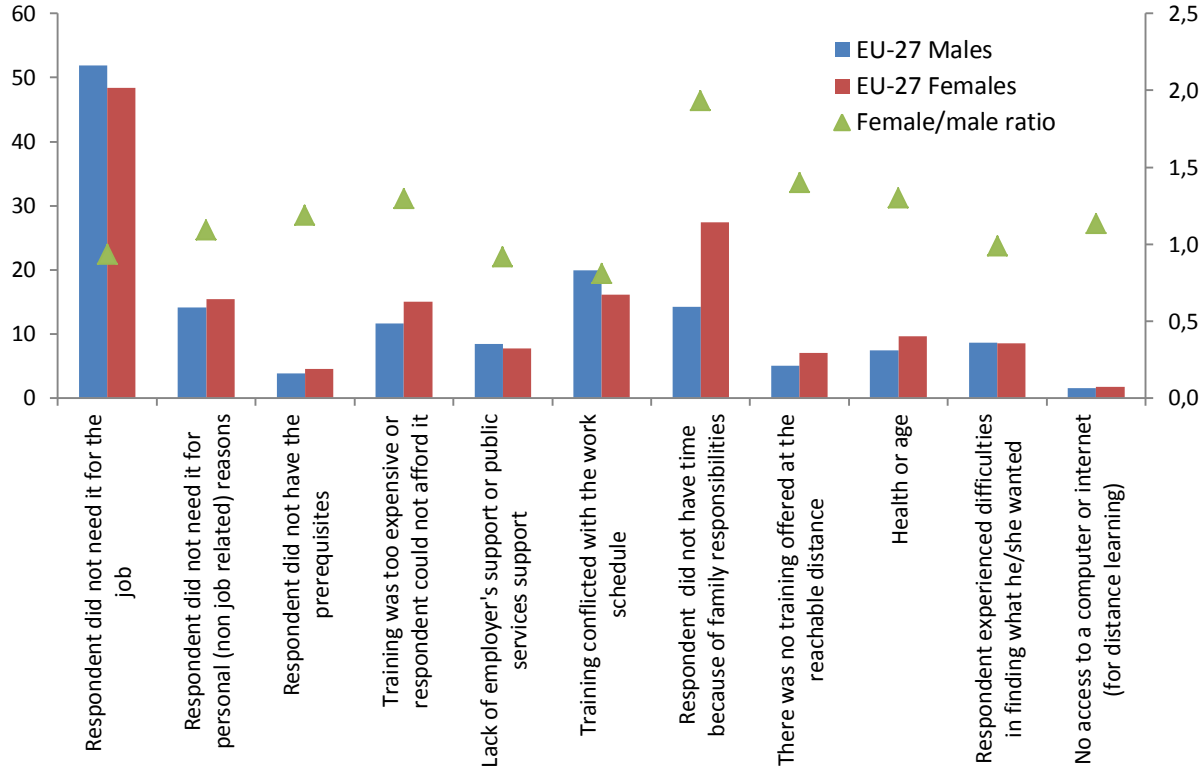
Figure 5. Female-to-male ratio in encountering differences for personal reasons



Source: Authors' calculations based Adult Education Survey, Eurostat (extracted on 13.05.2013)

There are also gender differences in responses to questions on obstacles to participation in different forms of education reported in AES. Majority of respondents (both men and women) in EU indicated that they did not need participation in education in their jobs. The second most frequently indicated reason for men was a work-education conflict, while for women it was family-education conflict. Women also more frequently indicate obstacles related to individual situation: personal (non-job related reasons), lack of affordability, health or age, as well as travel distance (Figure 6).

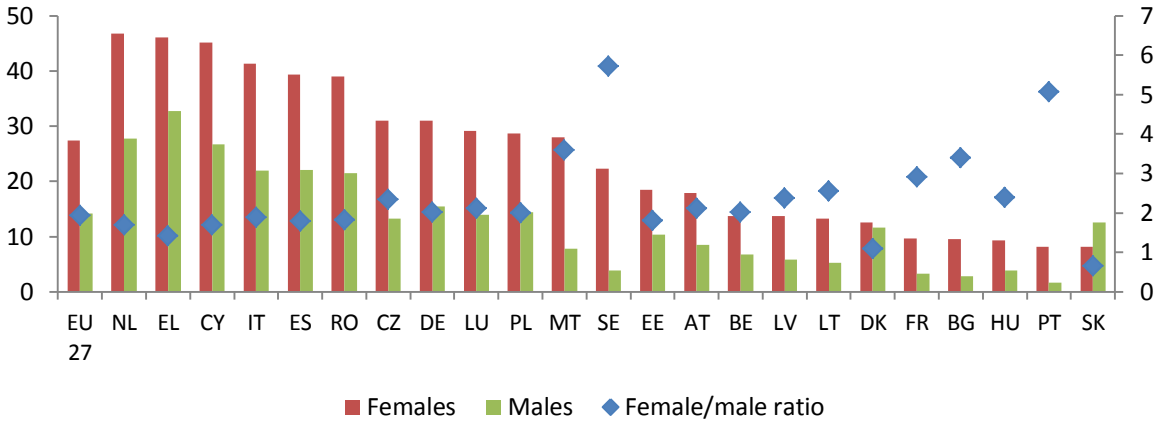
Figure 6. Obstacles to participation in education



Source: Authors' calculations based Adult Education Survey, Eurostat (extracted on 13.05.2013)

If we take closer look to the impact of family responsibilities on lifelong learning on a country level, we can see that it was more frequently reported in the Netherlands, Greece, Cyprus, Italy and Spain. While interpreting this result we should remember that answers are subjective and can be country biased. In the Netherlands the high share of respondents may stem from high value related to family, including family responsibilities and child-care. The largest relative gender differences are observed in Sweden and Portugal.

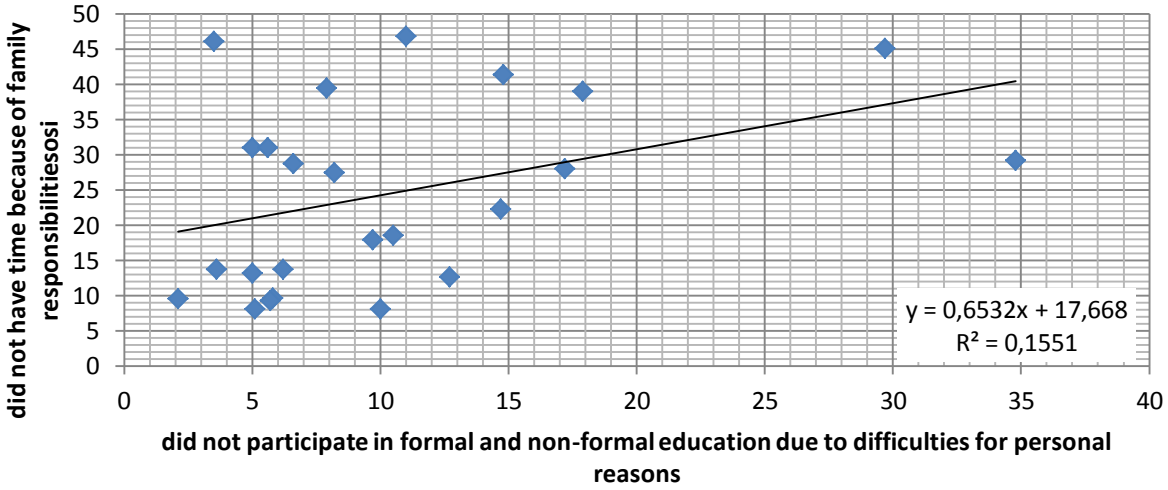
Figure 7. Obstacles related to family responsibilities by country



Source: Authors' calculations based Adult Education Survey, Eurostat (extracted on 13.05.2013)

Comparing share of respondents who did not participate in LLL due to personal reasons with share of those reporting barriers related to family responsibilities we see a positive, but not very strong, correlation between these statistics (Figure 8).

Figure 8. Personal and family reasons as barriers to participation in education



Source: Authors' calculations based AES, Eurostat (extracted on 13.05.2013)

Summarising, there are differences not only in participation of men and women in various types of formal and non-formal education, but also differences in reported reasons for lack of participation in educational activity as well as obstacles to such activity. Personal and family reasons more often conflict with educational activity of women. Men more frequently indicate that they don't want to participate in education or they encounter conflicts between work and learning. This means that for the assessment of gender differences in educational activity we need to look at factors that stimulate educational activity as well as those that create obstacles for such activity.

2. Analytical approach

In our study we apply the method that follows the work of (Arulampalam et al., 2004)and (Biagetti & Scicchitano, 2009), using the microeconometric modelling to estimate marginal effects of selected individual characteristics on probabilities of participation in education or training.

We use microdata from EU-harmonised LFS for the estimation of average marginal effects related to education and training probabilities for participation in education or training with relation to selected individual and labour market characteristics. We propose using LFS data for several reasons. First, LFS, compared to databases used in earlier research (such as EU-SILC), allows dividing lifelong learning activity between education (formal learning) and training (non-formal learning). Formal learning, such as for example higher education or initial vocational education characterizes usually younger cohorts of the labour force. Non-formal learning, in the form of training, is more related to labour market activity, gaining and developing skills required on the job.

Second, LFS has high quality information related to individual labour market characteristics. Third, the use of LFS allows adding variables related to sector of employment and profession, which were not used in earlier research (Arulampalam et al., 2004; Biagetti & Scicchitano, 2009; OECD, 1999). Finally, LFS has the largest sample of all potential surveys, which contributes to the robustness of the obtained results.

In order to assess the impact of individual characteristics on the probability of participation in education or training, we estimated logistic regressions for all EU countries using LFS results from 2011. Regressions were estimated for two separate depended variables: participation in formal education and participation in training courses. As explained earlier, there are different patterns of participation in formal and non-formal education of adults. Thus, separation of these two variables can lead to better interpretation of obtained results.

For both dependent variables we estimated logistic regressions for two populations: employed and total population aged from 25 to 64 (referred further as working age). Independent variables used for both populations include: gender, age, educational attainment and sector of employment based on NACE classification. For the population in working age we include also labour market status (employed, unemployed and inactive) and for the employed population profession, based on ISCO qualification. Profession was not included in the logistic regression for working-age population, due to co-linearity of variables related to profession and the one indicating no available information on sector of employment. In other words, full sample allows analysing the impact of labour market status, but we cannot take into account sector of employment and profession, which can be added for the employed sub-sample. Detailed description of independent variables is presented in the Appendix (Table A.1).

It should be noted that there is a difference in record selection for regressions. In the case of total working-age population we included records where we had no information on sector (reported as no data in the model) that applied to around 20% of cases. For employed population, we have estimated regressions including only those records that had both sector and profession reported.

For the interpretation of the results we use Average Marginal Effects (AMEs), which allow for quantitative analysis of the impact of the independent variable on the probability of participation in education or training. AMEs allow assessing the impact of the change of independent variable on the probability of participation in the selected form of education. For example for gender, AME represents a difference between probability of participation in education for a man and for a woman, with all other characteristics as observed in the sample. The reference characteristics (default) were as follows: men, aged 35-44 with higher education level, working in market services and performing highly qualified jobs.

3. Participation in education and training – results of the analysis

In this section we present results of the regressions focusing on selected individual characteristics as specified in models, including gender as the main theme of analysis in the paper, but also other individual characteristics. In the following sub-sections we compare results of four sets of logistic regressions that we estimated (Scheme 1). Detailed results of regressions for all EU countries are presented in the Appendix (Tables A.2 – A.5).

Scheme 1. Specification of regression models

	Formal education	Non-formal education
Population aged 25-64	1	2
Employed population	3	4

Source: authors' proposal

As shown in section 1, results of LFS and AES indicate some differences in LLL participation of men and women both at the EU and individual countries' level. Regression results indicate whether differences in LLL participation can be attributed to sex, or to other characteristics of men and women and whether the observed differences are statistically significant.

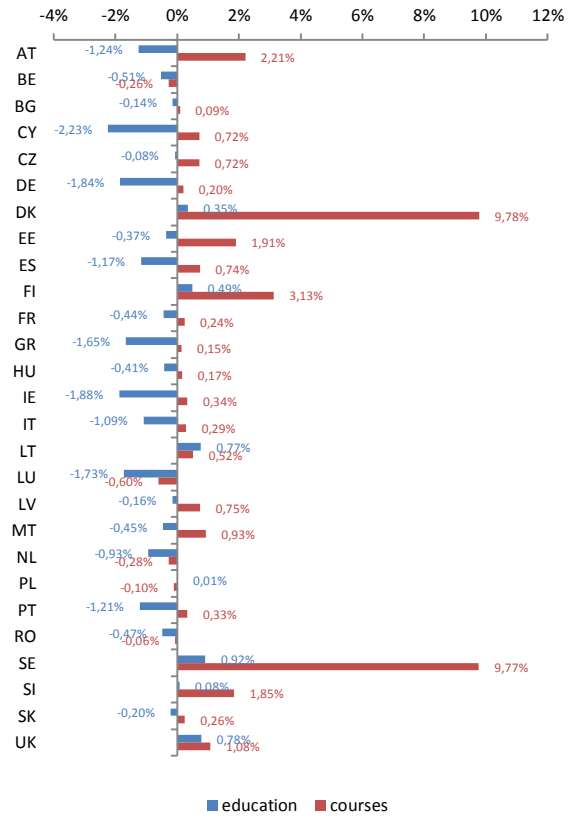
3.1. Gender and LLL participation

Estimated average marginal effects for women in the case of total population indicate that for most of the countries women are less likely to participate in formal education. In the case of Austria, Germany, Ireland and Greece, AMEs exceed 1 p.p. and are statistically significant. These results indicate that women may be finishing their education earlier than men (Figure 9 and Figure 10)

In the case of participation in non-formal education (courses), the situation changes. For most of the countries we observe positive AMEs, i.e. women are more likely to participate in this form of lifelong learning. The highest marginal effects (and statistically significant) are observed in Denmark, Sweden

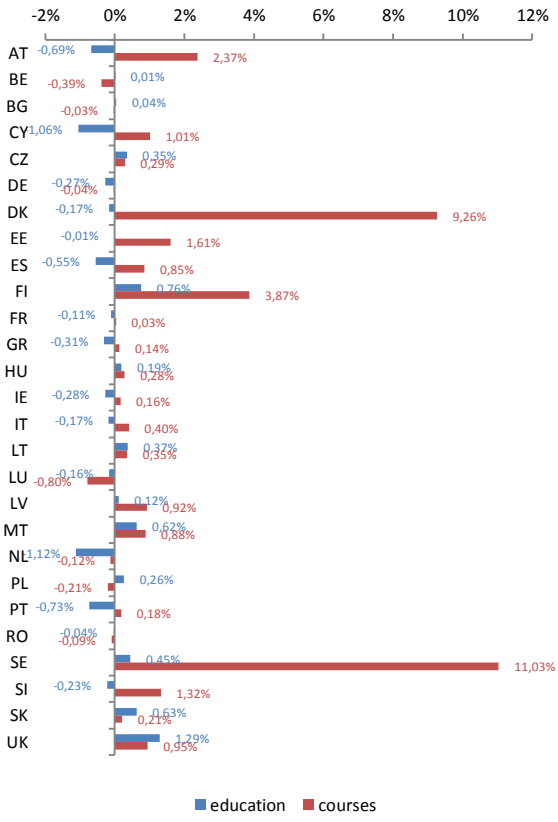
and Finland, which in general have the largest shares of adult population participating in lifelong learning. These results are in line with findings of (Quintini, 2011) that women correct their educational mismatch by participation in further training, which results in their lower skills mismatch.

Figure 9. AMEs for women: total population (percentage points)



Results statistically significant (at 5% level) for:
Education: AT, DE, EL IE, IT, RO, UK
Courses: AT, DK, ES, FI, SE, UK

Figure 10. AMEs for women: employees (percentage points)



Results statistically significant (at 5% level) for:
Education: ES, UK
Courses: AT, DK, FI, SE
Courses: AT, DK, FI, SE

Source: Authors' calculations

3.2. Age and LLL participation

Average marginal effects for age-related variables also show different results for two types of learning: in formal education or non-formal learning in training courses. In the case of education, age is an important determinant, statistically significant for almost all of the analysed countries (with exception of Malta and Cyprus). AMEs for youngest age group (25-34) are above zero in all of the countries, while for those aged 45 and over are negative. Similar results are obtained for the total population and for the employed. This is mainly the result of completing tertiary (second cycle) education after standard graduating age of below 25.

In the case of participation in courses we see different results. AMEs for age variables are in most cases not significant (p-values are above 5 per cent). Statistically significant estimates are observed (at least for one age group) in Austria, Czech Republic, Germany, Spain, France, the Netherlands, Portugal (only for total population) and the UK. Compared to the reference age group (those aged 35-44) we see that in third of the countries (9 out of 27) younger individuals are less likely to be trained, in the case of employed the number of countries rises to 12. However, the values of AMEs are rather low and range from -2 to +3 p.p. For age groups 45-54 and 55-64 we observe negative AMEs, with only exception of Sweden, where AMEs are positive but not statistically significant in the age group 45-54.

To sum up, age has a significant role for the participation in formal education. Not surprisingly, young people are more likely to participate in formal education. However, age has less impact on probabilities of participating in non-formal education. In this case we see statistically significant reductions of probabilities for participation in training for those aged 45 and over in many countries.

3.3. Educational attainment and LLL participation

Level of formal educational attainment, consistently with earlier research, appears to have a statistically significant impact on probabilities of participation in lifelong learning. In formal education we see negative average marginal effects for the total population in the case of individuals with secondary and lower educational attainment (compared to those with higher education level in the reference group), with exception of people with secondary education in Luxembourg and Slovenia. Similar results are also reported in the case of employed population, with exception of Luxembourg, Latvia, the Netherlands and Slovenia, where those with lower educational attainment have positive average marginal effects for participation in formal education.

The same direction, but with much higher intensity is also observed for the regressions of participation in non-formal education. In the case of total working-age population the average marginal effects of participation in training for those with secondary education are lower than minus 6 p.p. in eight countries. For those with lowest educational attainment the probability of participation in training drops by more than 9 p.p. in nine countries.

For the employed population, we can see the same pattern, but slightly lower level of AMEs, which is related to the fact that employed population has in general higher intensity of participating in lifelong learning (discussed in more details in section 3.4 below).

The results of the regressions confirm earlier findings in the literature that those with already high educational attainment tend to engage more frequently in education activities. As a result, the inequality of skills and human capital distribution across groups with different educational attainment rises in the life course perspective.

3.4. Labour market characteristics and LLL participation

The last group of characteristics included in regressions were labour market characteristics including employment status (in the case of total population), sector of current or last employment (based on NACE classification) and occupation (only for employed population, based on ISCO classification).

In the case of regression of participation in education for the total working-age population we see that labour market status is statistically significant (at least for one group: unemployed or inactive)

for most of the EU countries. Unemployed have higher probabilities of participating in education (with AMEs at 3 p.p. or higher) in Malta, the Netherlands, the UK, Portugal and Sweden. Majority of countries have higher probabilities of participating in education of inactive population (those who did not start their labour market participation yet), which shows that few young people study and work at the same time. The highest AMEs are observed in Sweden, Portugal, Belgium, Germany, Spain and Luxembourg.

Sector of employment also influences probabilities of participating in education. Those working in agriculture and industry have lower probabilities of being in education, while those working in non-market services have slightly higher ones. High effects observed for those with no data on NACE are most likely attributed to younger participants of education, who did not start their labour market activity yet. This is consistent with lower observed AMEs for participating in education of employed with no NACE data in regression models. Profession, for other groups than highly qualified workers, also (usually) reduces probabilities of participating in education in statistically significant way at least in one of professions in the case of 19 analysed countries. It should be noted that for the regressions on employed population, educational attainment becomes statistically insignificant when profession is included in the model.

Being unemployed increases probability of participating in courses (with AMEs of 2 p.p. or more) in Austria, Spain, Latvia, Malta and Sweden. In eight countries (most prominently in Finland and Czech Republic at statistically significant level) unemployed are less likely to participate in training. Labour market inactivity reduces or does not change probability of participation in training in almost all countries (with exception of Spain), with large and statistically significant effects in Czech Republic, Denmark, Estonia, Finland, Sweden and the UK. Sector of employment also matters. Those who work (or worked) in agriculture or industry have lower probabilities of participating in training (compared to employment in market services), while those who are (or were) employed in non-market services have usually higher probabilities of participation in training. For the total population, these higher probabilities are noticeable in Austria, Germany, Denmark, Spain, Sweden and the UK, while in the case of employed – in Austria, Germany, Denmark, Spain, France and the UK. Occupation also affects the likelihood of participation in training, which is lower compared to highly skilled in the case of all other types of occupation in all countries. The largest (and statistically significant) negative AMEs, with a value of 10 p.p. or lower at least for one occupation group, are observed in Austria, Czech Republic, Denmark, Spain, Finland, Sweden and Slovenia.

4. Conclusions

Understanding the factors that influence lifelong learning activity is necessary to provide evidence to develop effective lifelong learning policies in Europe. Maintaining educational activity in the life course allows to sustain and develop skills needed for longer working lives. Learning in all contexts (formal, non-formal and informal) forms an important part of the social investment perspective.

In the paper, we looked at various aspects of lifelong learning activity of women and men, taking into account evidence from the literature and EU surveys (Labour Force Survey and Adult Education Survey). The analysis indicates that we need to look both at the determinants of participation in educational activity as well as barriers and obstacles to lifelong learning faced particularly by women.

The proposed approach allows comparing probabilities of participating in education and training for all EU countries using harmonised data and similar methodology. But it has also limitations. First, using LFS data we are not able to identify and assess reasons for non-participation in education. Second, the impact of education activity on employability and earnings level cannot be followed, due to limited longitudinal perspective of the survey.

Logistic regression results show that factoring out personal and job characteristics the gender effect appears only in few countries, resulting in increasing probability in lifelong learning participation of women (at statistically significant level). These results are strongest in Denmark and Sweden. In these two countries, average marginal effects of participation in training are high at 9 p.p. and 11 p.p. respectively. For other countries, observed differences in participation rates of men and women in LLL are eliminated once we control for education and jobs

Our results are in-line with earlier international and national research on the gender perspective in lifelong learning. Use of the LFS data allows dividing educational activity between formal and non-formal learning, which gives more insight on patterns of educational activity, particularly in relation to age or labour market status. Most of the research up-to-date combine these two activities together. Results of logistic regressions presented in the paper show that women have slightly lower probabilities of participating in formal education. But, women have on average higher probabilities of participating in training courses. This finding is particularly strong in those countries that have highest shares of adults participating in LLL.

The paper fits into the earlier work attempting to apply microeconometric (logistic or probit) regression models to identify determinants of lifelong learning participation. Compared to earlier work (Arulampalam et al., 2004; Biagetti & Scicchitano, 2009), we extend the range of the independent variables covering entire working age population, which allows for identification of the influence of labour market status (being employed, unemployed or inactive) on probabilities of employment, as well as the role of the economic sector of (previous) employer. We see that labor market status – being unemployed or inactive – increases slightly probabilities of participation in LLL, which potentially can translate into higher probabilities of being employed, following findings by (Jenkins, 2004) or higher wage levels, based on finding of (Blanden et al., 2010). Our results are in line with up-to date research, particularly on little gender-attributed differences in lifelong learning participation when controlling for other individual factors (age, educational attainment, labour market status, profession or sector of employment). The impact of other than gender characteristics on LLL participation is more visible and statistically significant.

Thus, LLL policies should focus on increasing participation in learning of individuals that due to age, skills level, labour market status, profession and employment sector, while gender should be taken into account while developing measures that remove obstacles in LLL participation due to family or personal responsibilities.

The cross-sectional character of LFS dataset does not allow investigating gender differences in the impact of lifelong learning on employability. Recent studies of labour market mismatches (Quintini, 2011) may indicate that there are gender-related differences on the use of lifelong learning to reduce the skills mismatch compared to the level of education mismatch. Further development of longitudinal surveys, such as National Education Panel Survey (NEPS) in Germany (Blossfeld,

Roßbach, & Von Maurice, 2011) or Determinants of Educational Decisions (UDE) in Poland[11] or may allow to fill this gap in the future.

[11] http://eduentuzjasci.pl/en/en-badania-naukowe/120-english-categories/research/516-determinants-of-educational-decisions-household-panel-study.html

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Appendix

Table A. 1. Construction of independent and dependent variables

Model variable	Original variable in LFS	Comments	Values
Dependent variables			
sex	sex	No change	1 "man" 2 "woman"
age	age	Aggregated from 5 to 10-year age groups for ages 25-64	0 "24 and less" 1 "25-34" 2 "35-44" 3 "45-54" 4 "55-64"
Education level (educlevel)	hatlev1d	Recoded to non-text variable	0 "below 15 years" 1 "ISCED 5+" 2 "ISCED 3-4" 3 "ISCED 1-2 "
Labour market status (ilostat)	ilostat	People on mandatory military service are classified as working	1 "working" 2 "unemployed" 3 "inactive" 9 "child (<15)"
Sector (nace)	nace1d, nacepr1d	Information on employment sector is available for working and those who are unemployed and inactive for the last job they had. The final variable includes both cases. In the case where there is no information available there no-data label is assigned. Aggregation of NACE was performed to the 1-digit level of NACE rev. 2 (2008) according to the following key: (1) agriculture- A, (2) industry – B-F, (3) market services– G-N, (4) non-market services – O-U.	0 "child (<15)" 1 "agriculture" 2 "industry" 3 "market services" 4 "non-market services" 9 "no data"
Occupation (isco)	isco1d, iscopr1d	Information on occupation is available for employed and part of unemployed and inactive. In the final variable all available information is included. In the case of missing data, no data is assigned. Aggregation to 1-digit ISCO ISC-08 i ISCO-88: (1) high qualified white-collar – 0-3, (2) middle qualified white collar – 4-5, (3) qualified blue-collar – 6-8, (4) unqualified blue-collar (simple jobs) – 9, based on: (Whelan, Maitre, & Nolan, 2011)	0 "child (<15)" 1 "high qualified white-collar" 2 "middle qualified white collar " 3 "qualified blue-collar" 4 "unqualified blue-collar" 9 "no data"
Independent variables			
Participation in courses (non-formal education)	couratt	No change	0 "did not participate" 1 "participate"
Participation in education (formal education)	educstat	People in education, who were on holiday break are included in education participants	0 "did not participate" 1 "participate"

Table A. 2. Results of logistic regression for participation in formal education (total population) 2011

Country	independent variables	sex: man (default)	sex: woman	age: 25-34	age: 35-44 (default)	age: 45-54	age: 55-64	labour market status: employed (default)	labour market status: unemployed	labour market status: inactive	education level: higher (default)	education level: secondary	education level: lower secondary and below	NACE agriculture	NACE: indistry	[illegible] (default)	NACE: non-market services	NACE no data	No of observations	pseudo-R2	LR (Chi2)	p-value
AT	AME	-	- 0,01	0,10	-	- 0,02	- 0,03	-	0,01	0,06	-	- 0,03	- 0,07	- 0,02	- 0,02	-	0,02	0,03	99 589	0,24	365,13	0,00%
	p-value	-	3,05%	0,00%	-	0,16%	0,00%	-	49,44%	0,00%	0,00%	0,01%	0,00%	2,86%	0,77%	-	0,27%	10,95%				
BE	AME	-	- 0,01	0,03	-	- 0,01	- 0,03	-	0,03	0,07	-	- 0,02	- 0,03	- 0,01	- 0,01	-	0,01	0,00	54 483	0,11	169,74	0,00%
	p-value	-	26,04%	0,01%	-	2,80%	0,00%	-	1,92%	0,00%	0,00%	0,26%	0,00%	81,69%	37,06%	-	13,09%	83,58%				
BG	AME	-	- 0,00	0,04	-	- 0,01	- 0,01	-	- 0,00	0,02	-	0,00	- 0,01	- 0,01	- 0,01	-	0,00	0,03	17 991	0,35	179,15	0,00%
	p-value	-	66,70%	0,00%	-	1,90%	1,10%	-	36,72%	3,72%	0,00%	81,11%	0,06%	21,76%	4,75%	-	83,77%	3,70%				
CY	AME	-	- 0,02	0,04	-	- 0,01	- 0,01	-	0,00	0,04	-	- 0,01	- 0,03	0,00	- 0,01	-	0,01	0,02	24 396	0,24	23,06	2,72%
	p-value	-	14,84%	4,38%	-	66,93%	28,95%	-	95,26%	32,71%	0,00%	37,68%	1,37%	98,99%	56,49%	-	43,93%	57,27%				
CZ	AME	-	- 0,00	0,04	-	- 0,02	- 0,02	-	- 0,02	- 0,01	-	- 0,01	- 0,03	0,00	- 0,00	-	0,02	0,20	25 021	0,26	362,38	0,00%
	p-value	-	84,94%	0,00%	-	0,09%	0,00%	-	0,00%	39,39%	0,00%	0,56%	0,00%	85,07%	25,15%	-	0,03%	0,00%				
DE	AME	-	- 0,02	0,11	-	- 0,01	- 0,01	-	- 0,01	0,06	-	0,00	- 0,02	- 0,02	- 0,01	-	0,01	0,01	25 956	0,31	3 770,65	0,00%
	p-value	-	0,00%	0,00%	-	0,00%	0,00%	-	0,01%	0,00%	0,00%	6,86%	0,00%	0,54%	0,00%	-	0,00%	2,81%				
DK	AME	-	0,00	0,13	-	- 0,03	- 0,05	-	0,01	0,14	-	- 0,01	- 0,03	- 0,02	- 0,01	-	0,03	- 0,01	52 642	0,23	287,34	0,00%
	p-value	-	68,88%	0,00%	-	0,84%	0,00%	-	69,65%	0,00%	0,00%	30,11%	0,33%	31,94%	17,37%	-	1,69%	32,69%				
EE	AME	-	- 0,00	0,09	-	- 0,04	- 0,05	-	- 0,01	0,02	-	- 0,01	- 0,05	- 0,03	- 0,02	-	0,03	0,05	11 700	0,19	55,17	0,00%
	p-value	-	82,98%	0,35%	-	3,65%	0,62%	-	63,88%	56,22%	0,00%	60,19%	1,88%	41,79%	20,32%	-	16,53%	43,21%				
ES	AME	-	- 0,01	0,06	-	- 0,01	- 0,02	-	0,02	0,06	-	- 0,02	- 0,05	- 0,01	- 0,01	-	0,02	0,01	56 564	0,20	1 520,20	0,00%
	p-value	-	0,00%	0,00%	-	0,00%	0,00%	-	0,00%	0,00%	0,00%	0,00%	0,00%	12,34%	0,00%	-	0,00%	4,17%				
FI	AME	-	0,00	0,10	-	- 0,05	- 0,09	-	0,03	0,10	-	0,00	- 0,04	- 0,04	- 0,03	-	0,01	- 0,05	15 010	0,16	257,97	0,00%
	p-value	-	64,95%	0,00%	-	0,07%	0,00%	-	24,53%	0,00%	0,00%	79,53%	0,42%	18,49%	2,46%	-	29,48%	0,73%				
FR	AME	-	- 0,00	0,03	-	- 0,00	-	-	- 0,00	0,01	-	- 0,01	- 0,01	- 0,00	- 0,00	-	0,00	0,06	64 181	0,35	947,20	0,00%
	p-value	-	0,06%	0,00%	-	46,95%	0,00%	-	0,09%	0,23%	0,00%	0,00%	0,00%	24,01%	0,05%	-	4,38%	0,00%				
GR	AME	-	- 0,02	0,05	-	- 0,01	- 0,01	-	0,00	0,04	-	- 0,00	- 0,02	- 0,01	- 0,01	-	0,01	0,02	145 330	0,34	360,99	0,00%
	p-value	-	0,00%	0,00%	-	1,08%	0,04%	-	55,28%	0,02%	0,00%	33,10%	0,00%	31,96%	10,34%	-	17,15%	0,75%				
HU	AME	-	- 0,00	0,05	-	- 0,02	- 0,02	-	- 0,01	0,01	-	- 0,01	- 0,03	- 0,01	- 0,00	-	0,01	0,10	152 333	0,27	309,45	0,00%
	p-value	-	29,55%	0,00%	-	0,11%	0,00%	-	2,93%	27,81%	0,00%	8,14%	0,00%	46,96%	30,97%	-	4,58%	0,00%				
IE	AME	-	- 0,02	0,04	-	- 0,01	- 0,03	-	0,01	0,10	-	- 0,03	- 0,05	- 0,02	- 0,01	-	0,01	0,01	115 743	0,13	106,37	0,00%
	p-value	-	4,03%	0,05%	-	48,72%	0,13%	-	29,16%	0,00%	0,00%	0,71%	0,00%	36,54%	57,18%	-	39,39%	63,81%				
IT	AME	-	- 0,01	0,06	-	- 0,01	- 0,01	-	0,00	0,04	-	- 0,01	- 0,05	- 0,01	- 0,01	-	0,01	0,03	339 202	0,36	2 880,18	0,00%
	p-value	-	0,00%	0,00%	-	0,00%	0,00%	-	59,36%	0,00%	0,00%	0,00%	0,00%	5,42%	0,00%	-	0,00%	0,00%				
LT	AME	-	0,01	0,07	-	- 0,02	- 0,02	-	- 0,00	0,03	-	0,00	- 0,02	- 0,02	- 0,01	-	0,01	0,01	35 628	0,20	82,75	0,00%
	p-value	-	30,50%	0,01%	-	2,02%	0,37%	-	88,44%	25,22%	0,00%	85,07%	4,13%	0,33%	15,29%	-	49,59%	62,98%				

Country	independent variables	sex: man (default)	sex: woman	age: 25-34	age: 35-44 (default)	age: 45-54	age: 55-64	labour market status: employed (default)	labour market status: unemployed	labour market status: inactive	education level: higher (default)	education level: secondary	education level: lower secondary and below	NACE agriculture	NACE: indistry	[illegible] (default)	NACE: non-market services	NACE no data	No of observations	pseudo-R2	LR (Chi2)	p-value
LU	AME	-	- 0,02	0,08	-	- 0,02	- 0,03	-	0,01	0,07	-	0,01	- 0,02	-	- 0,01	-	0,02	0,05	10 698	0,33	24,14	1,21%
	p-value	-	42,41%	7,51%	-	42,78%	24,12%	-	80,93%	34,03%	0,00%	54,88%	38,00%	0,00%	82,90%	-	48,46%	40,12%				
LV	AME	-	- 0,00	0,04	-	- 0,02	- 0,02	-	- 0,02	- 0,00	-	0,00	- 0,02	- 0,02	- 0,01	-	0,02	0,01	18 726	0,15	42,12	0,00%
	p-value	-	86,79%	1,18%	-	9,10%	1,44%	-	17,25%	91,52%	0,00%	97,36%	14,31%	13,78%	32,86%	-	10,89%	72,25%				
MT	AME	-	- 0,00	0,03	-	- 0,01	- 0,02	-	0,03	0,05	-	- 0,04	- 0,07	-	- 0,00	-	0,02	- 0,00	13 057	0,21	11,32	41,68%
	p-value	-	83,49%	41,97%	-	68,67%	39,79%	-	76,17%	46,01%	0,00%	47,79%	17,83%	0,00%	86,17%	-	52,28%	87,04%				
NL	AME	-	- 0,01	0,10	-	- 0,02	- 0,06	-	0,03	0,03	-	- 0,01	- 0,01	- 0,04	- 0,02	-	0,04	0,01	43 704	0,08	347,61	0,00%
	p-value	-	16,30%	0,00%	-	0,21%	0,00%	-	17,44%	18,73%	0,00%	37,87%	8,80%	1,63%	3,09%	-	0,00%	59,98%				
PL	AME	-	0,00	0,05	-	- 0,02	- 0,02	-	- 0,00	0,01	-	- 0,02	- 0,03	- 0,02	- 0,01	-	0,01	0,03	225 640	0,17	975,79	0,00%
	p-value	-	95,56%	0,00%	-	0,00%	0,00%	-	86,97%	8,28%	0,00%	0,00%	0,00%	0,00%	0,47%	-	0,01%	0,00%				
PT	AME	-	- 0,01	0,05	-	- 0,03	- 0,06	-	0,08	0,10	-	- 0,02	- 0,02	- 0,02	- 0,01	-	0,02	- 0,03	84 368	0,09	266,74	0,00%
	p-value	-	6,53%	0,00%	-	0,05%	0,00%	-	0,00%	0,00%	0,00%	12,09%	3,19%	15,53%	40,20%	-	0,88%	0,82%				
RO	AME	-	- 0,00	0,04	-	- 0,01	- 0,01	-	0,00	0,03	-	- 0,01	- 0,02	- 0,01	- 0,01	-	0,00	0,01	135 119	0,30	505,13	0,00%
	p-value	-	2,51%	0,00%	-	0,27%	0,00%	-	94,51%	0,12%	0,00%	3,16%	0,00%	0,00%	2,44%	-	25,42%	11,84%				
SE	AME	-	0,01	0,08	-	- 0,03	- 0,07	-	0,11	0,20	-	- 0,03	- 0,04	- 0,01	- 0,02	-	0,03	0,01	190 851	0,22	518,12	0,00%
	p-value	-	19,78%	0,00%	-	0,05%	0,00%	-	0,00%	0,00%	0,00%	0,00%	0,01%	73,08%	1,52%	-	0,02%	67,56%				
SI	AME	-	0,00	0,13	-	- 0,06	- 0,07	-	- 0,00	0,04	-	0,01	- 0,05	- 0,04	- 0,03	-	0,01	0,04	35 875	0,22	131,70	0,00%
	p-value	-	95,85%	0,00%	-	0,17%	0,00%	-	95,95%	26,42%	0,00%	72,96%	1,40%	17,35%	12,71%	-	52,23%	44,29%				
SK	AME	-	- 0,00	0,03	-	- 0,01	- 0,01	-	- 0,01	0,02	-	- 0,03	- 0,04	- 0,01	- 0,01	-	0,01	0,02	58 429	0,23	147,71	0,00%
	p-value	-	71,60%	0,02%	-	9,41%	0,44%	-	36,21%	19,21%	0,00%	0,05%	0,00%	27,44%	14,49%	-	19,65%	19,34%				
UK	AME	-	0,01	0,03	-	- 0,02	- 0,05	-	0,03	0,04	-	- 0,03	- 0,05	- 0,00	- 0,00	-	0,03	0,01	44 682	0,08	1 036,96	0,00%
	p-value	-	0,37%	0,00%	-	0,00%	0,00%	-	0,02%	0,00%	0,00%	0,00%	0,00%	77,32%	0,30	-	0,00%	0,74%				

Source: authors' calculations

Table A. 3. Results of logistic regression for participation in training (total population) 2011

Country	independent variables	sex: man (default)	sex: woman	age: 25-34	age: 35-44 (default)	age: 45-54	age: 55-64	labour market status: employed (default)	labour market status: unemployed	labour market status: inactive	education level: higher (default)	education level: secondary	education level: lower secondary and below	NACE agriculture	NACE: indistry	[illegible] (default)	NACE: non-market services	NACE no data	No of observations	pseudo-R2	LR (Chi2)	p-value
AT	AME	-	0,02	0,01	-	- 0,01	- 0,03	-	0,06	- 0,02	-	- 0,08	- 0,13	- 0,00	- 0,02	-	0,05	- 0,02	99 589	0,06	190,49	0,00%
	p-value		1,74%	45,60%		44,63%	0,81%		8,87%	19,34%		0,00%	0,00%	84,81%	10,27%		0,00%	44,82%				
BE	AME	-	- 0,00	- 0,00	-	- 0,00	- 0,01	-	0,01	- 0,01	-	- 0,05	- 0,06	0,00	- 0,01	-	0,01	- 0,01	54 483	0,06	132,22	0,00%
	p-value		65,36%	77,72%		68,58%	12,64%		63,05%	18,17%		0,00%	0,00%	93,28%	26,26%		5,82%	37,82%				
BG	AME	-	0,00	0,00	-	- 0,00	- 0,00	-	0,00	- 0,00	-	- 0,00	-	-	0,00	-	0,00	0,00	13 365	0,11	6,03	81,29%
	p-value		44,26%	45,20%		88,10%	48,43%		68,70%	77,09%		75,25%			77,99%		53,28%	58,94%				
CY	AME	-	0,01	0,01	-	- 0,00	0,01	-	- 0,01	- 0,03	-	- 0,05	- 0,08	- 0,02	- 0,02	-	0,02	0,00	24 396	0,08	15,39	22,07%
	p-value		74,90%	72,64%		94,93%	83,03%		75,74%	43,91%		5,10%	0,25%	79,70%	58,18%		49,10%	94,06%				
CZ	AME	-	0,01	- 0,01	-	- 0,02	- 0,04	-	- 0,06	- 0,10	-	- 0,08	- 0,13	- 0,03	- 0,03	-	0,02	- 0,01	25 014	0,08	319,14	0,00%
	p-value	-	37,72%	48,59%	-	8,04%	0,12%	-	0,06%	0,00%	0,00%	0,00%	0,00%	14,94%	0,05%	-	14,84%	79,01%				
DE	AME	-	0,00	0,01	-	- 0,01	- 0,02	-	0,02	- 0,02	-	- 0,05	- 0,07	- 0,02	- 0,01	-	0,03	- 0,01	25 958	0,07	1 272,29	0,00%
	p-value	-	35,29%	0,78%	-	0,04%	0,00%	-	0,06%	0,00%	0,00%	0,00%	0,00%	0,24%	3,24%	-	0,00%	9,15%				
DK	AME	-	0,10	0,03	-	0,00	- 0,02	-	0,01	- 0,08	-	- 0,07	- 0,11	- 0,06	- 0,03	-	0,04	- 0,03	52 642	0,04	132,00	0,00%
	p-value	-	0,00%	21,17%	-	86,70%	50,02%	-	71,68%	0,18%	0,00%	0,11%	0,00%	32,93%	25,22%	-	3,27%	49,59%				
EE	AME	-	0,02	- 0,01	-	- 0,03	- 0,05	-	- 0,01	- 0,07	-	- 0,07	- 0,08	- 0,04	- 0,03	-	0,03	- 0,06	11 700	0,11	45,16	0,00%
	p-value	-	35,39%	71,50%	-	32,83%	9,17%	-	76,39%	0,06%	0,00%	0,29%	1,00%	33,29%	16,38%	-	27,78%	15,72%				
ES	AME	-	0,01	0,02	-	- 0,01	- 0,03	-	0,04	0,01	-	- 0,07	- 0,10	- 0,03	- 0,00	-	0,04	- 0,00	56 564	0,07	1 124,45	0,00%
	p-value	-	4,44%	0,04%	-	2,40%	0,00%	-	0,00%	28,18%	0,00%	0,00%	0,00%	0,00%	46,28%	-	0,00%	99,54%				
FI	AME	-	0,03	0,00	-	- 0,01	- 0,02	-	- 0,10	- 0,12	-	- 0,08	- 0,12	0,01	- 0,03	-	0,04	- 0,03	15 003	0,07	176,24	0,00%
	p-value	-	3,59%	96,80%	-	67,42%	39,36%	-	0,05%	0,00%	0,00%	0,00%	0,00%	83,18%	5,11%	-	2,91%	59,99%				
FR	AME	-	0,00	0,00	-	- 0,01	- 0,04	-	0,01	0,02	-	- 0,03	- 0,05	- 0,02	0,00	-	0,02	- 0,02	86 742	0,04	601,10	0,00%
	p-value	-	36,58%	78,45%	-	1,49%	0,00%	-	26,27%	0,05%	0,00%	0,00%	0,00%	0,10%	67,66%	-	0,00%	0,00%				
GR	AME	-	0,00	- 0,00	-	- 0,00	- 0,01	-	- 0,00	- 0,01	-	- 0,01	- 0,02	- 0,01	- 0,00	-	0,00	0,00	145 330	0,08	58,46	0,00%
	p-value	-	57,28%	93,87%	-	37,04%	7,56%	-	49,83%	12,15%	0,00%	0,09%	0,00%	7,87%	82,45%	-	56,71%	64,22%				
HU	AME	-	0,00	0,00	-	- 0,00	- 0,01	-	0,00	- 0,00	-	- 0,01	- 0,02	- 0,01	- 0,00	-	0,00	- 0,00	152 333	0,05	32,40	0,12%
	p-value	-	54,85%	27,58%	-	33,77%	14,81%	-	85,14%	62,62%	0,00%	1,68%	0,05%	40,26%	82,16%	-	99,90%	39,48%				
IE	AME	-	0,00	- 0,00	-	- 0,00	- 0,01	-	0,00	- 0,01	-	- 0,02	- 0,03	- 0,01	- 0,00	-	0,01	- 0,01	115 692	0,04	23,27	2,55%
	p-value	-	66,06%	59,52%	-	83,23%	63,39%	-	78,52%	40,67%	0,00%	2,89%	0,25%	64,66%	70,30%	-	25,32%	64,48%				
IT	AME	-	0,00	- 0,00	-	0,00	- 0,00	-	- 0,01	- 0,02	-	- 0,04	- 0,06	- 0,02	- 0,01	-	0,01	- 0,00	339 119	0,08	718,38	0,00%
	p-value	-	15,05%	34,12%	-	40,46%	83,43%	-	15,49%	0,00%	0,00%	0,00%	0,00%	0,29%	1,60%	-	4,17%	26,85%				

Country	independent variables	sex: man (default)	sex: woman	age: 25-34	age: 35-44 (default)	age: 45-54	age: 55-64	labour market status: employed (default)	labour market status: unemployed	labour market status: inactive	education level: higher (default)	education level: secondary	education level: lower secondary and below	NACE agriculture	NACE: indistry	[illegible] (default)	NACE: non-market services	NACE no data	No of observations	pseudo-R2	LR (Chi2)	p-value
LT	AME	-	0,01	0,01	-	- 0,00	- 0,01	-	- 0,02	- 0,03	-	- 0,05	- 0,06	- 0,02	- 0,01	-	0,02	0,01	35 628	0,11	61,97	0,00%
	p-value	-	58,60%	48,31%	-	89,47%	46,91%	-	23,96%	5,33%	0,00%	0,00%	0,01%	8,58%	56,13%	-	18,61%	81,96%				
LU	AME	-	- 0,01	0,02	-	- 0,02	- 0,04	-	0,00	- 0,06	-	- 0,04	- 0,11	0,02	- 0,01	-	0,04	- 0,01	10 773	0,07	13,81	31,27%
	p-value	-	87,90%	65,58%	-	72,50%	44,01%	-	97,60%	30,42%	0,00%	37,34%	2,13%	91,59%	85,27%	-	31,70%	88,88%				
LV	AME	-	0,01	0,00	-	- 0,01	- 0,01	-	0,02	- 0,01	-	- 0,04	- 0,04	0,00	- 0,01	-	0,02	- 0,00	18 726	0,07	24,47	1,76%
	p-value	-	46,57%	99,69%	-	46,70%	49,61%	-	46,54%	60,79%	0,00%	1,02%	1,09%	83,71%	42,35%	-	21,70%	88,17%				
MT	AME	-	0,01	- 0,02	-	- 0,02	- 0,02	-	0,06	- 0,01	-	- 0,03	- 0,06	- 0,03	- 0,01	-	0,02	- 0,02	13 182	0,07	5,98	91,69%
	p-value	-	76,31%	57,76%	-	72,45%	67,58%	-	61,96%	90,33%	0,00%	59,20%	24,91%	81,06%	84,65%	-	65,62%	71,11%				
NL	AME	-	- 0,00	0,00	-	- 0,01	- 0,04	-	- 0,01	- 0,03	-	- 0,01	- 0,04	- 0,05	- 0,01	-	0,02	- 0,04	43 704	0,03	131,66	0,00%
	p-value	-	71,46%	93,06%	-	32,59%	0,04%	-	60,50%	13,64%	0,00%	14,06%	0,00%	0,27%	23,40%	-	6,45%	5,58%				
PL	AME	-	- 0,00	0,00	-	- 0,00	- 0,00	-	- 0,01	- 0,02	-	- 0,03	- 0,03	- 0,01	- 0,01	-	0,00	- 0,00	225 640	0,11	447,08	0,00%
	p-value	-	59,22%	96,63%	-	76,34%	9,91%	-	12,34%	0,00%	0,00%	0,00%	0,00%	0,00%	1,77%	-	6,95%	61,45%				
PT	AME	-	0,00	0,00	-	- 0,01	- 0,02	-	- 0,01	- 0,01	-	- 0,05	- 0,09	- 0,04	- 0,01	-	0,01	- 0,02	84 368	0,07	178,72	0,00%
	p-value	-	59,69%	64,97%	-	51,02%	3,45%	-	44,33%	60,65%	0,00%	0,00%	0,00%	0,11%	33,26%	-	20,08%	20,51%				
RO	AME	-	- 0,00	0,00	-	- 0,00	- 0,00	-	0,00	- 0,00	-	- 0,01	- 0,01	- 0,00	0,00	-	0,00	- 0,00	132 915	0,10	69,07	0,00%
	p-value	-	61,81%	86,51%	-	93,60%	61,88%	-	88,06%	0,69%	0,00%	0,19%	0,03%	1,64%	77,07%	-	12,38%	80,55%				
SE	AME	-	0,10	0,02	-	0,01	- 0,02	-	0,10	- 0,07	-	- 0,07	- 0,12	- 0,03	- 0,00	-	0,03	- 0,03	190 671	0,05	237,44	0,00%
	p-value	-	0,00%	25,35%	-	66,62%	25,50%	-	0,13%	0,07%	0,00%	0,00%	0,00%	51,54%	77,07%	-	2,37%	40,37%				
SI	AME	-	0,02	- 0,01	-	- 0,01	- 0,00	-	- 0,01	- 0,04	-	- 0,10	- 0,15	0,01	- 0,02	-	0,03	- 0,01	35 875	0,08	63,40	0,00%
	p-value	-	30,01%	81,46%	-	78,33%	87,47%	-	72,69%	17,41%	0,00%	0,01%	0,00%	84,13%	46,29%	-	18,46%	77,05%				
SK	AME	-	0,00	- 0,00	-	- 0,00	- 0,00	-	- 0,02	- 0,02	-	- 0,03	- 0,04	- 0,01	- 0,00	-	- 0,00	- 0,01	58 429	0,08	50,13	0,00%
	p-value	-	64,07%	97,86%	-	91,80%	78,46%	-	3,15%	0,01%	0,00%	0,31%	0,01%	30,17%	63,80%	-	72,29%	45,40%				
UK	AME	-	0,01	0,01	-	- 0,00	- 0,04	-	- 0,02	- 0,06	-	- 0,06	- 0,11	- 0,06	- 0,01	-	0,07	0,02	44 646	0,06	1 564,08	0,00%
	p-value	-	0,65%	8,58%	-	64,79%	0,00%	-	1,08%	0,00%	-	0,00%	0,00%	0,00%	0,08	-	0,00%	4,07%				

Source: authors' calculations

Table A. 4. Results of logistic regression for participation in formal education (employed) 2011

	explanatory variables	sex: man (default)	sex: woman	age: 25-34	age: 35-44 (default)	age: 45-54	age: 55-64	education level: higher (default)	education level: secondary	education level: lower secondary and below	NACE agriculture	NACE: industry	NACE: market services (default)	NACE: non-market services	profession: highly qualified (default)	profession: white collar	profession: blue collar	profession: simple jobs	No of observations	pseudo-R2	LR (Chi2)	p-value
AT	AME	-	- 0,01	0,07	-	- 0,01	- 0,02	-	- 0,02	- 0,04	- 0,01	- 0,01	-	0,02	-	- 0,01	- 0,03	- 0,03	74 938	0,19	202,61	0,00%
	p-value	-	28,66%	0,00%	-	1,33%	0,89%	-	1,71%	0,00%	77,60%	8,85%	-	1,85%	-	10,94%	0,00%	0,16%				
BE	AME	-	0,00	0,01	-	- 0,00	- 0,01	-	- 0,01	- 0,02	- 0,01	- 0,00	-	0,01	-	- 0,00	- 0,01	- 0,00	37 719	0,04	33,74	0,07%
	p-value	-	98,16%	2,88%	-	34,90%	28,88%	-	9,49%	1,78%	62,37%	92,15%	-	19,79%	-	62,79%	31,40%	86,68%				
BG	AME	-	0,00	0,02	-	- 0,00	- 0,00	-	0,00	- 0,00	-	- 0,00	-	0,00	-	- 0,00	- 0,00	- 0,01	10 671	0,15	30,33	0,14%
	p-value	-	89,59%	1,05%	-	10,20%	10,56%	-	97,45%	87,83%	0,00%	34,36%	-	89,90%	-	91,15%	34,68%	28,31%				
CY	AME	-	- 0,01	0,03	-	- 0,01	- 0,01	-	- 0,01	-	0,02	- 0,00	-	0,02	-	- 0,01	- 0,03	- 0,03	14 358	0,13	8,00	71,29%
	p-value	-	59,06%	22,76%	-	69,26%	39,49%	-	68,61%	0,00%	90,94%	93,47%	-	46,66%	-	64,29%	13,79%	26,21%				
CZ	AME	-	0,00	0,03	-	- 0,01	- 0,02	-	- 0,00	- 0,01	0,02	0,00	-	0,02	-	- 0,01	- 0,02	- 0,03	17 931	0,15	135,85	0,00%
	p-value	-	43,36%	0,00%	-	0,58%	0,00%	-	74,38%	73,57%	45,81%	78,41%	-	0,16%	-	7,85%	0,00%	0,01%				
DE	AME	-	- 0,00	0,07	-	- 0,01	-	-	0,01	0,02	- 0,01	- 0,01	-	0,01	-	- 0,01	- 0,02	- 0,02	16 216	0,18	1 187,20	0,00%
	p-value	-	16,13%	0,00%	-	0,00%	0,00%	-	0,01%	0,02%	43,69%	0,09%	-	0,16%	-	0,01%	0,00%	0,00%				
DK	AME	-	- 0,00	0,10	-	- 0,02	- 0,03	-	- 0,02	- 0,02	- 0,03	- 0,01	-	0,03	-	0,03	- 0,01	0,01	42 299	0,17	140,90	0,00%
	p-value	-	85,56%	0,00%	-	8,39%	0,01%	-	10,85%	16,09%	20,35%	32,45%	-	1,37%	-	3,73%	54,01%	73,94%				
EE	AME	-	- 0,00	0,08	-	- 0,03	- 0,04	-	0,01	- 0,03	0,01	- 0,01	-	0,03	-	- 0,02	- 0,05	- 0,06	8 557	0,20	41,09	0,00%
	p-value	-	99,73%	1,26%	-	10,10%	1,38%	-	65,15%	33,96%	91,56%	80,27%	-	17,44%	-	40,54%	2,41%	3,21%				
ES	AME	-	- 0,01	0,03	-	- 0,01	- 0,01	-	- 0,01	- 0,03	0,01	- 0,00	-	0,02	-	0,00	- 0,02	- 0,00	35 987	0,13	525,76	0,00%
	p-value	-	3,16%	0,00%	-	0,00%	0,00%	-	1,11%	0,00%	28,60%	66,25%	-	0,00%	-	96,98%	0,00%	79,24%				
FI	AME	-	0,01	0,09	-	- 0,04	- 0,06	-	0,02	- 0,02	- 0,02	- 0,02	-	0,02	-	- 0,03	- 0,06	- 0,03	11 301	0,12	136,62	0,00%
	p-value	-	53,73%	0,00%	-	0,83%	0,00%	-	11,77%	33,10%	50,42%	11,55%	-	20,56%	-	7,88%	0,08%	25,45%				
FR	AME	-	- 0,00	0,02	-	- 0,00	-	-	- 0,00	- 0,00	- 0,00	- 0,00	-	0,00	-	- 0,00	- 0,00	- 0,00	51 935	0,20	295,94	0,00%
	p-value	-	35,97%	0,00%	-	56,69%	0,00%	-	12,00%	0,49%	45,05%	0,12%	-	5,45%	-	43,83%	13,79%	91,25%				
GR	AME	-	- 0,00	0,02	-	- 0,00	- 0,01	-	- 0,00	- 0,01	- 0,00	- 0,00	-	0,00	-	- 0,00	- 0,01	- 0,01	89 547	0,12	46,31	0,00%
	p-value	-	31,69%	0,16%	-	20,09%	3,42%	-	78,43%	20,00%	93,57%	90,67%	-	21,76%	-	70,27%	10,56%	8,42%				
HU	AME	-	0,00	0,02	-	- 0,01	- 0,01	-	0,00	- 0,00	0,00	0,00	-	0,01	-	- 0,01	- 0,02	- 0,03	91 092	0,13	80,98	0,00%
	p-value	-	66,79%	0,06%	-	2,07%	0,04%	-	72,39%	70,42%	96,07%	61,26%	-	8,44%	-	13,34%	0,04%	0,01%				
IE	AME	-	- 0,00	0,02	-	- 0,01	- 0,01	-	- 0,02	- 0,03	- 0,01	- 0,00	-	0,01	-	0,00	- 0,01	- 0,01	75 692	0,06	25,53	1,25%
	p-value	-	76,58%	5,82%	-	59,69%	21,54%	-	8,13%	2,24%	82,10%	81,79%	-	54,34%	-	77,50%	24,85%	73,18%				
IT	AME	-	- 0,00	0,03	-	- 0,01	- 0,01	-	- 0,01	- 0,02	0,00	- 0,00	-	0,01	-	0,00	- 0,01	- 0,01	208 350	0,16	491,05	0,00%
	p-value	-	30,25%	0,00%	-	0,00%	0,00%	-	2,98%	0,00%	73,31%	1,45%	-	0,00%	-	70,66%	0,00%	1,06%				
LT	AME	-	0,00	0,05	-	- 0,02	- 0,02	-	0,03	- 0,01	- 0,02	- 0,01	-	0,01	-	- 0,03	- 0,04	- 0,03	25 449	0,20	57,09	0,00%
	p-value	-	67,93%	0,11%	-	4,19%	1,10%	-	5,73%	75,19%	14,62%	26,46%	-	60,01%	-	4,02%	0,58%	4,06%				
LU	AME	-	- 0,00	0,02	-	- 0,01	- 0,01	-	0,02	0,01	-	0,00	-	0,01	-	- 0,01	- 0,02	-	7 067	0,10	2,95	98,26%
	p-value	-	93,48%	50,39%	-	64,71%	55,58%	-	36,66%	81,46%	0,00%	99,71%	-	68,32%	-	66,56%	49,65%	0,00%				

	explanatory variables	sex: man (default)	sex: woman	age: 25-34	age: 35-44 (default)	age: 45-54	age: 55-64	education level: higher (default)	education level: secondary	education level: lower secondary and below	NACE agriculture	NACE: industry	NACE: market services (default)	NACE: non-market services	profession: highly qualified (default)	profession: white collar	profession: blue collar	profession: simple jobs	No of observations	pseudo-R2	LR (Chi2)	p-value
LV	AME	-	0,00	0,04	-	- 0,02	- 0,02	-	0,02	0,01	- 0,02	- 0,01	-	0,02	-	- 0,04	- 0,04	- 0,05	12 816	0,17	38,87	0,01%
	p-value	-	92,44%	4,05%	-	13,31%	2,69%	-	8,71%	77,77%	32,26%	62,12%	-	27,02%	-	0,94%	2,47%	0,15%				
MT	AME	-	0,01	0,02	-	- 0,01	- 0,02	-	- 0,02	- 0,04	-	- 0,00	-	0,01	-	- 0,01	- 0,02	- 0,02	7 656	0,16	5,99	87,38%
	p-value	-	83,59%	65,41%	-	66,47%	52,80%	-	69,28%	36,01%	0,00%	99,33%	-	65,25%	-	72,70%	67,54%	78,42%				
NL	AME	-	- 0,01	0,09	-	- 0,02	- 0,05	-	0,01	0,01	- 0,02	- 0,01	-	0,04	-	- 0,02	- 0,04	- 0,02	36 443	0,07	249,84	0,00%
	p-value	-	14,62%	0,00%	-	0,70%	0,00%	-	30,26%	35,56%	24,74%	23,34%	-	0,00%	-	0,60%	0,04%	22,69%				
PL	AME	-	0,00	0,04	-	- 0,01	- 0,02	-	0,00	- 0,01	- 0,01	0,00	-	0,01	-	- 0,01	- 0,03	- 0,03	146 810	0,13	513,13	0,00%
	p-value	-	37,15%	0,00%	-	0,00%	0,00%	-	55,93%	59,05%	11,54%	79,30%	-	0,02%	-	0,26%	0,00%	0,00%				
PT	AME	-	- 0,01	0,03	-	- 0,02	- 0,04	-	- 0,00	0,01	- 0,00	- 0,00	-	0,03	-	- 0,03	- 0,04	- 0,03	57 706	0,06	99,26	0,00%
	p-value	-	32,44%	0,11%	-	1,19%	0,00%	-	92,43%	25,78%	85,23%	92,92%	-	0,09%	-	2,24%	0,41%	1,13%				
RO	AME	-	- 0,00	0,01	-	- 0,00	- 0,01	-	0,00	0,00	- 0,01	- 0,00	-	0,00	-	- 0,00	- 0,01	- 0,01	87 049	0,13	97,41	0,00%
	p-value	-	82,79%	0,01%	-	3,02%	0,05%	-	3,62%	60,08%	0,94%	51,37%	-	32,84%	-	28,72%	0,33%	2,51%				
SE	AME	-	0,00	0,05	-	- 0,01	- 0,03	-	- 0,03	- 0,04	- 0,01	- 0,01	-	0,03	-	0,02	- 0,00	0,05	155 264	0,12	174,32	0,00%
	p-value	-	52,09%	0,00%	-	7,02%	0,00%	-	0,16%	0,02%	82,35%	13,82%	-	0,00%	-	4,09%	70,40%	4,58%				
SI	AME	-	- 0,00	0,10	-	- 0,05	- 0,06	-	0,03	- 0,03	- 0,02	- 0,01	-	0,01	-	- 0,03	- 0,08	- 0,07	24 615	0,17	77,23	0,00%
	p-value	-	90,33%	0,05%	-	0,36%	0,03%	-	19,92%	38,62%	70,90%	75,02%	-	69,52%	-	29,31%	0,02%	6,98%				
SK	AME	-	0,01	0,02	-	- 0,01	- 0,01	-	- 0,01	- 0,02	- 0,01	- 0,00	-	0,01	-	- 0,00	- 0,02	- 0,01	38 771	0,14	50,49	0,00%
	p-value	-	24,56%	3,77%	-	14,07%	6,52%	-	7,44%	0,81%	77,34%	67,41%	-	31,34%	-	90,92%	1,16%	34,19%				
UK	AME	-	0,01	0,02	-	- 0,02	- 0,04	-	- 0,02	- 0,04	- 0,00	0,00	-	0,03	-	0,01	- 0,01	0,01	32 764	0,06	582,61	0,00%
	p-value	-	0,00%	0,01%	-	0,00%	0,00%	-	0,00%	0,00%	92,33%	47,43%	-	0,00%	-	0,75%	22,62%	34,81%				

Source: authors' calculations

Table A. 5. Results of logistic regression for participation in training (employed) 2011

	explanatory variables	sex: man (default)	sex: woman	age: 25-34	age: 35-44 (default)	age: 45-54	age: 55-64	education level: higher (default)	education level: secondary	education level: lower secondary and below	NACE agriculture	NACE: industry	NACE: market services (default)	NACE: non-market services	profession: highly qualified (default)	profession: white collar	profession: blue collar	profession: simple jobs	No of observations	pseudo-R2	LR (Chi2)	p-value
AT	AME	-	0,02	0,01	-	- 0,01	- 0,02	-	- 0,06	- 0,10	0,03	- 0,01	-	0,04	-	- 0,05	- 0,07	- 0,10	74 938	0,07	166,90	0,00%
	p-value	-	4,01%	63,66%	-	64,36%	18,23%	-	0,01%	0,00%	43,79%	30,23%	-	0,19%	-	0,04%	0,02%	0,00%				
BE	AME	-	- 0,00	- 0,00	-	- 0,00	- 0,01	-	- 0,03	- 0,05	0,00	- 0,01	-	0,01	-	- 0,03	- 0,04	- 0,04	37 719	0,06	106,11	0,00%
	p-value	-	61,47%	60,64%	-	77,07%	39,34%	-	0,02%	0,00%	94,41%	53,40%	-	15,45%	-	0,47%	0,08%	0,06%				
BG	AME	-	- 0,00	0,00	-	0,00	-	-	- 0,00	-	-	0,00	-	0,00	-	-	- 0,00	0,01	5 422	0,08	2,21	97,38%
	p-value	-	89,53%	56,51%	-	89,04%	0,00%	-	66,10%	0,00%	0,00%	86,45%	-	52,66%	-	0,00%	98,55%	70,23%				
CY	AME	-	0,01	0,01	-	- 0,00	0,00	-	- 0,02	- 0,05	0,01	- 0,01	-	0,02	-	- 0,05	- 0,07	- 0,09	18 351	0,11	17,64	12,72%
	p-value	-	71,51%	68,89%	-	93,08%	97,65%	-	45,95%	18,75%	92,83%	84,38%	-	53,42%	-	18,50%	13,76%	1,16%				
CZ	AME	-	0,00	- 0,01	-	- 0,02	- 0,04	-	- 0,04	- 0,07	- 0,01	- 0,02	-	0,01	-	- 0,07	- 0,11	- 0,15	17 924	0,06	196,21	0,00%
	p-value	-	78,85%	44,16%	-	9,86%	0,54%	-	0,45%	1,71%	80,43%	15,26%	-	42,41%	-	0,00%	0,00%	0,00%				
DE	AME	-	- 0,00	0,01	-	- 0,01	- 0,02	-	- 0,03	- 0,06	- 0,00	- 0,01	-	0,03	-	- 0,02	- 0,04	- 0,06	19 917	0,07	1 135,63	0,00%
	p-value	-	88,77%	0,21%	-	2,27%	0,00%	-	0,00%	0,00%	68,46%	2,85%	-	0,00%	-	0,00%	0,00%	0,00%				
DK	AME	-	0,09	0,03	-	0,00	- 0,03	-	- 0,03	- 0,08	- 0,02	- 0,01	-	0,05	-	- 0,05	- 0,10	- 0,13	42 299	0,04	104,97	0,00%
	p-value	-	0,00%	29,01%	-	87,39%	35,44%	-	19,41%	1,88%	78,41%	68,85%	-	4,58%	-	9,51%	0,43%	0,12%				
EE	AME	-	0,02	- 0,01	-	- 0,02	- 0,05	-	- 0,05	- 0,05	- 0,03	- 0,03	-	0,03	-	- 0,06	- 0,07	- 0,10	8 557	0,10	34,62	0,05%
	p-value	-	55,13%	85,79%	-	47,23%	19,53%	-	8,32%	37,50%	70,54%	35,24%	-	40,84%	-	11,68%	4,96%	1,14%				
ES	AME	-	0,01	0,01	-	- 0,01	- 0,04	-	- 0,05	- 0,07	- 0,02	0,00	-	0,04	-	- 0,03	- 0,05	- 0,07	35 987	0,07	777,23	0,00%
	p-value	-	7,60%	3,87%	-	10,38%	0,00%	-	0,00%	0,00%	20,75%	53,27%	-	0,00%	-	0,00%	0,00%	0,00%				
FI	AME	-	0,04	0,01	-	- 0,01	- 0,02	-	- 0,04	- 0,09	0,08	- 0,03	-	0,04	-	- 0,08	- 0,13	- 0,13	11 296	0,05	110,27	0,00%
	p-value	-	4,32%	78,04%	-	68,83%	48,30%	-	7,02%	0,60%	22,00%	27,91%	-	8,46%	-	0,17%	0,00%	0,06%				
FR	AME	-	0,00	- 0,00	-	- 0,01	- 0,02	-	- 0,02	- 0,04	- 0,01	0,01	-	0,02	-	- 0,01	- 0,03	- 0,04	61 191	0,03	347,49	0,00%
	p-value	-	92,31%	66,05%	-	12,36%	0,00%	-	0,00%	0,00%	48,99%	9,15%	-	0,00%	-	0,15%	0,00%	0,00%				
GR	AME	-	0,00	- 0,00	-	- 0,00	- 0,01	-	- 0,01	- 0,02	- 0,01	0,00	-	0,00	-	- 0,00	- 0,01	- 0,01	89 547	0,09	45,20	0,00%
	p-value	-	71,60%	79,67%	-	35,38%	21,03%	-	2,32%	0,08%	54,00%	84,18%	-	65,53%	-	43,83%	17,32%	10,57%				
HU	AME	-	0,00	0,00	-	- 0,00	- 0,00	-	- 0,01	- 0,01	- 0,01	- 0,00	-	- 0,00	-	- 0,00	- 0,01	- 0,01	91 092	0,05	21,53	4,31%
	p-value	-	47,45%	34,11%	-	42,12%	65,62%	-	21,87%	5,09%	59,02%	95,52%	-	81,38%	-	44,41%	18,91%	3,78%				
IE	AME	-	0,00	- 0,00	-	- 0,00	- 0,00	-	- 0,02	- 0,03	- 0,00	- 0,00	-	0,01	-	- 0,01	- 0,02	- 0,02	75 646	0,03	16,40	17,37%
	p-value	-	87,86%	79,35%	-	77,97%	79,81%	-	15,21%	3,88%	89,72%	81,88%	-	30,95%	-	53,03%	28,74%	25,97%				
IT	AME	-	0,00	- 0,01	-	0,00	- 0,01	-	- 0,03	- 0,05	- 0,01	- 0,00	-	0,01	-	- 0,02	- 0,03	- 0,04	208 328	0,07	520,04	0,00%
	p-value	-	16,36%	15,00%	-	63,48%	10,66%	-	0,00%	0,00%	50,32%	35,61%	-	5,08%	-	0,00%	0,00%	0,00%				

	explanatory variables	sex: man (default)	sex: woman	age: 25-34	age: 35-44 (default)	age: 45-54	age: 55-64	education level: higher (default)	education level: secondary	education level: lower secondary and below	NACE agriculture	NACE: industry	NACE: market services (default)	NACE: non-market services	profession: highly qualified (default)	profession: white collar	profession: blue collar	profession: simple jobs	No of observations	pseudo-R2	LR (Chi2)	p-value
LT	AME	-	0,00	0,01	-	- 0,00	- 0,01	-	- 0,02	- 0,05	- 0,02	- 0,00	-	0,01	-	- 0,04	- 0,05	- 0,06	25 449	0,11	53,14	0,00%
	p-value	-	78,40%	59,10%	-	89,45%	47,76%	-	12,43%	0,90%	51,51%	83,09%	-	31,10%	-	2,48%	0,09%	0,09%				
LU	AME	-	- 0,01	0,03	-	- 0,02	- 0,04	-	- 0,02	- 0,09	0,03	- 0,01	-	0,06	-	- 0,02	- 0,03	- 0,09	7 760	0,05	7,56	81,85%
	p-value	-	87,60%	65,29%	-	69,42%	59,93%	-	70,37%	27,81%	91,00%	91,32%	-	27,16%	-	74,90%	76,95%	34,02%				
LV	AME	-	0,01	- 0,00	-	- 0,01	- 0,00	-	- 0,02	- 0,02	0,01	- 0,01	-	0,02	-	- 0,03	- 0,03	- 0,04	12 816	0,10	25,80	1,14%
	p-value	-	49,06%	98,26%	-	58,08%	90,21%	-	21,73%	55,89%	76,05%	37,52%	-	32,60%	-	3,70%	23,17%	1,09%				
MT	AME	-	0,01	- 0,03	-	- 0,02	- 0,03	-	- 0,03	- 0,06	- 0,02	- 0,00	-	0,02	-	- 0,00	- 0,03	- 0,05	7 765	0,07	4,51	97,23%
	p-value	-	83,85%	60,96%	-	78,05%	64,82%	-	66,92%	40,80%	90,72%	97,13%	-	64,95%	-	98,63%	66,98%	45,18%				
NL	AME	-	- 0,00	0,00	-	- 0,01	- 0,03	-	0,00	- 0,03	- 0,05	- 0,01	-	0,01	-	- 0,03	- 0,03	- 0,06	36 443	0,01	65,31	0,00%
	p-value	-	89,63%	80,08%	-	48,64%	0,35%	-	94,98%	4,73%	1,60%	39,68%	-	18,97%	-	1,24%	2,22%	0,05%				
PL	AME	-	- 0,00	0,00	-	- 0,00	- 0,01	-	- 0,02	- 0,03	- 0,01	- 0,01	-	0,00	-	- 0,02	- 0,02	- 0,03	146 810	0,10	347,04	0,00%
	p-value	-	44,23%	63,56%	-	83,82%	18,84%	-	0,00%	0,00%	0,42%	11,99%	-	28,27%	-	0,00%	0,00%	0,00%				
PT	AME	-	0,00	0,00	-	- 0,00	- 0,02	-	- 0,04	- 0,06	- 0,04	- 0,01	-	0,01	-	- 0,02	- 0,03	- 0,04	57 706	0,07	141,40	0,00%
	p-value	-	82,40%	72,40%	-	75,23%	8,85%	-	1,60%	0,00%	1,22%	60,64%	-	18,20%	-	6,33%	2,06%	0,22%				
RO	AME	-	- 0,00	- 0,00	-	- 0,00	- 0,00	-	- 0,00	- 0,01	- 0,00	0,00	-	0,00	-	- 0,00	- 0,00	- 0,01	87 049	0,08	48,87	0,00%
	p-value	-	61,92%	90,63%	-	91,44%	93,13%	-	9,86%	20,31%	1,70%	78,74%	-	21,38%	-	13,25%	16,13%	2,44%				
SE	AME	-	0,11	0,03	-	0,01	- 0,02	-	- 0,05	- 0,09	0,00	0,01	-	0,03	-	- 0,06	- 0,09	- 0,13	154 946	0,06	227,30	0,00%
	p-value	-	0,00%	11,79%	-	67,83%	27,02%	-	0,60%	0,01%	95,38%	65,99%	-	4,56%	-	0,06%	0,01%	0,00%				
SI	AME	-	0,01	- 0,01	-	- 0,01	- 0,02	-	- 0,06	- 0,12	0,05	- 0,02	-	0,03	-	- 0,06	- 0,07	- 0,10	24 615	0,08	48,60	0,00%
	p-value	-	57,20%	79,59%	-	80,97%	53,02%	-	4,84%	0,17%	49,92%	49,42%	-	23,41%	-	4,84%	7,00%	1,65%				
SK	AME	-	0,00	- 0,00	-	- 0,00	- 0,00	-	- 0,02	- 0,04	- 0,01	- 0,00	-	- 0,00	-	- 0,01	- 0,01	- 0,03	38 771	0,04	20,88	5,22%
	p-value	-	79,15%	90,51%	-	97,06%	79,73%	-	6,53%	1,23%	47,56%	92,92%	-	70,46%	-	23,50%	20,30%	3,77%				
UK	AME	-	0,01	0,00	-	- 0,00	- 0,04	-	- 0,04	- 0,09	- 0,05	0,00	-	0,08	-	- 0,02	- 0,06	- 0,08	32 731	0,05	1 103,46	0,00%
	p-value	-	5,66%	61,85%	-	99,41%	0,00%	-	0,00%	0,00%	1,09%	88,17%	-	0,00%	-	0,17%	0,00%	0,00%				

Source: authors' calculations