

The Impact of Formal Adult Education on the Likelihood of Being Employed: a Comparative Overview

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Abstract

This article aims to map formal adult education in terms of the determinants of educational upgrading later in life, relating these back to social inequalities from a comparative perspective, and to labour market outcomes following participation, particularly the probability of being employed. It relies on a longitudinal analysis of data from the United Kingdom, Spain, Sweden and Russia. Results show that educational upgrading at mature ages has the potential for reducing social inequalities in all the countries analysed. Upgraders tend to come from a medium to low education background in Russia and the UK but from the tertiary educated in Spain and Sweden. Labour market marginalisation increases the chance of upgrading particularly in Sweden. Upgrading tends to increase employment opportunities, though these are in some cases conditional on being employed whilst studying. This is specifically the case for Russia and for men in the UK. We also found important country-specific gender differences in the effect of upgrading on employment opportunities, according to which women benefit more than men in the UK and Sweden. We conclude with some suggestions about the institutional effects that produce differences between countries.

Keywords: adult education, social inequalities, employment, Europe, formal education.

Introduction

Adult education has become an important issue for many Western societies due to processes of industrial and demographic change (Jarvis & Pöggeler 1994, OECD 2002, 2006, Tuijman 1992). On the one hand, knowledge-based economies require individuals to develop their skills over the entire life span (Cunha et al 2006, Heckman 2000). This need is intensified by the rapid change that takes place in a globalised world. On the other hand, demographic ageing and smaller cohorts entering the labour force increase the need to encourage all potential workers to stay in employment. For older cohorts in particular, this may imply a need to acquire additional training (Esping-Andersen 1996):

In addition to an economic need, the question of adult education is of high interest from a social inequality point of view as well (Elman & O'Rand 2004, Hällsten 2011). The tendency for those individuals who are more advantaged, particularly in terms of educational attainment, to accumulate more (educational) resources has been termed both a Matthew effect (Merton 1968) and cumulative advantage (DiPrete & Eirich 2006, Elman & O'Rand 2004). This differential accumulation leads to growing inequalities, in terms of both education and labour market outcomes, over the life span. However, we expect that countries are likely to differ in the extent to which this happens.

Cross-national comparisons of educational trajectories in adulthood can extend our knowledge of the determinants of participation in adult education and the benefits of this participation on labour market outcomes. Moreover, they may also improve our understanding of the impact of institutional

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conditions on educational careers and competence development. This article aims to map formal adult education in terms of the determinants of participation and its relationship with the probability of being employed; relating the results back to social inequalities associated with educational attainment and labour market outcomes. In particular, we examine whether adult education contributes to or counters trends of cumulative advantage over the life course. It will rely on analyses of data from the United Kingdom, Spain, Sweden and Russia. The four countries chosen for this comparison represent different constellations of national institutions and labour market characteristics that may affect participation rates, characteristics of participants and labour market outcomes.

Our main focus is on 'educational upgraders': people who at a mature age gain a qualification that is higher than their previous qualification. Even though it captures only a small proportion of adult learning, this group is of crucial importance in terms of social inequality due to the fact that the attained level of formal education is a major determinant of labour market chances in general (e.g. Shavit & Müller 1998). Moreover, returning to formal education tends to require a significant investment of time from the individual, and we would, therefore, expect individuals to be able to reap the rewards from this investment in terms of improved labour market outcomes. However, previous research casts some doubt as to whether this will be the case, as will be described below.

We focus on employment as our main outcome of interest partly because it is easily available for all countries and partly because enhanced employment probabilities are the first stepping stone for a broader range of improvements in the labour market. Moreover, we assume that adult upgraders, particularly those who are not employed during their studies, are likely to see improvements in their employment probabilities sooner than in their incomes. Although improved income is also an important outcome for adult upgraders, it is more likely to be affected by cumulative advantage, meaning that it is likely to take longer for adult upgraders to catch up.

We believe that national institutions may shape both the determinants of upgrading as well as its subsequent labour market outcomes. On the one hand, different educational and welfare systems enable different types of individuals to return to schooling. The effect of the welfare state may be particularly noticeable in terms of producing gender differences. On the other hand, the openness of educational and employment systems for individuals to change their orientation may also have implications for the scarring effect of mature versus early graduation. More specifically, if long and uninterrupted employment careers are highly rewarded by employers in a country, and/or if opportunities for adults to return to education are restricted, we expect adult upgraders to be unable to benefit greatly from their improved educational level. Finally, the general level of social inequality in a country may also reflect the extent to which adult education follows a tendency for cumulative advantage.

The next section deals with the link between adult education and social inequality and reviews previous research on participation in formal adult education and its impact on labour market outcomes. Subsequently, we briefly discuss the national institutional contexts. Following this, the data used for the four countries is described before moving on to the main results. The paper concludes with a discussion of the results and their implications for patterns of social inequality.

Literature review: adult education and social inequality

Adult education and learning is of major importance from a social inequality point of view. It offers, at least in theory, a possibility for those who have left education with low or 'inappropriate' qualifications to increase their skill levels and acquire new credentials. Education has a powerful impact on individuals' labour market trajectories, as shown by a multitude of studies following the human capital approach (e.g. Shavit & Müller 1998). Education may not only determine the position at which an individual enters the labour market but is also likely to limit how far they can progress.

In knowledge-based societies, where more emphasis is placed on technical and communicative skills, there is a greater risk of social exclusion and unemployment among those with basic levels of education (Vanttaja & Järvinen 2006), those in low-skilled jobs (Maurin & Thesmar 2004) and/or those whose skills have become outdated (Johnston 1994). Education-related inequalities on the labour market can potentially be reduced through further investment in education. In other words, adult education can offer individuals who were previously excluded from the labour market or with lower levels of education the opportunity to acquire the knowledge and competences necessary to gain employment, or to move into more secure labour market positions.

The overall process of expanding higher education in modern industrial societies has contributed to the increase and diversification of students participating in adult education (Schuetze & Slowey 2002). Previous research on patterns of participation in formal adult education and its impact on labour market outcomes has concentrated on individual country studies and the consequences of a late educational upgrade on changes in income. Very little is known about the impact on other labour market outcomes.

Elman and O'Rand (1998) argue that status maintenance and cumulative disadvantage models predict that American middle-aged workers with few educational and social resources will be less likely to retrain than those with higher levels of resources. In contrast, the likelihood of a late entry into education has been found to be higher for individuals who are disadvantaged to a moderate extent in terms of current earnings rank and with some unemployment experience in Sweden, which suggests a more egalitarian pattern (Hällsten 2011). Egerton (2001) found for the UK that proportionately more people from working-class than middle-class origins study as adults than at the school-leaving stage. It has also been found that those who went to college earlier in life but did not graduate are more likely to re-enter later in life than their peers who never entered college (Elman & O'Rand 1998, Hällsten 2011). Postsecondary school entry later in life tends to reflect the stratification outcomes of prior exposure to institutional sorting at school and work (Elman & O'Rand 2004).

Overall, these findings may reflect two complementary patterns of participation in formal adult education: participants can be the 'advantaged amongst the disadvantaged' or the 'disadvantaged amongst the advantaged'. In other words, participants need to have some kind of advantages in order to return to education, be it in terms of previous experience of higher education or class background. However, adult participants are also likely to have experienced some disadvantages on the labour market; otherwise they would not return to education. In any case, it is crucial to clarify who participates in adult education in order to analyse its impact on labour market chances (Jenkins et al 2003).

Regarding the consequences of an educational upgrade later in life on labour market outcomes, there is an important debate over whether the effects are comparable to those from the same education obtained earlier in life. These studies are centred on differences in income over time (e.g. Heckman & Vytlačil 2000, Leigh & Gill 1997). Most studies have found that mature graduates are disadvantaged compared to early graduates in terms of income after graduation (Egerton 2000, 2001, Purcell et al 2007 for the UK, Elman & O'Rand 2004, Taniguchi 2005 for the US, Albrecht et al. 2005, Ekström 2003, Holmlund et al. 2007 for Sweden, Klausen, 2011 for Denmark), although they may catch up over time. On the other hand, some studies have found mature graduates to be advantaged compared to early graduates, for example, with regards to securing graduate-level employment soon after graduation in the UK (Woodfield 2011, see also Leigh & Gill 1997 for the US). Elman and O'Rand (2004) attribute the better outcomes for people who attain a high level of (educational) resources earlier in the life course to the cumulative career advantages that early bloomers enjoy.

Instead of comparing mature graduates to early graduates, they can be compared to people with the education level that the upgraders had before upgrading – or to their own trajectories across time. These results tend to show either no effect (Silles 2007 just looking at men in the UK) or positive ones

(Jacobson et al 2005, Light 1995 for the US, Vanttaja & Järvinen 2006 for Finland, Stenberg 2011 for Sweden). There is also evidence from the UK suggesting that new qualifications, regardless of whether or not they are higher than any obtained previously, do not have an impact on wages in general (Jenkins et al 2003). On the other hand, new qualifications were found to improve the probability of leaving non-employment (Jenkins et al 2003). When going into finer details of who benefits from adult education, the results can become relatively diverse and possibly very sensitive to sample selection. For example, Ekström (2003) shows a positive effect of adult education only for women, while Zhang and Palameta (2006) found that men who stay with the same employer are the ones to benefit the most in terms of upward income mobility.

The institutional contexts

We study formal adult education in four European countries: Sweden, Spain, Russia and the UK. These countries represent different institutional set-ups in terms of welfare, education and employment systems. We recognise that isolating the impact of specific institutions whilst only examining four countries is hardly possible. Nevertheless, we believe that by studying these four countries, we are able to reach more generalisable results and provide comparisons that may offer preliminary evidence for possible institutional effects.

Regarding the welfare state, Sweden stands out as a country that fosters individual mobility through active labour market policies that support adults in improving their vocational skills and, hence, increase their employability (Esping-Andersen 1993). The public provision of adult education at all levels of education is relatively generous. Municipalities have been legally bound to offer education at the compulsory and upper secondary level for individuals aged 20 and above since 1969. Tertiary level education is generally available in the cities. A legal right for employees to take study leave and to be reinstated with equal working conditions and wages subsequently enables participation, as well as the fact that all publicly funded schooling is free of charge. Moreover, full-time students are entitled to financial support that covers modest living expenses. Therefore, we expect that there should be comparatively strong upgrading through adult education in Sweden. Due to high gender equality in terms of education and labour market participation, we do not expect major gender differences. However, due to processes of cumulative advantage, it is an open empirical question whether the emphasis on lifelong learning in Sweden will increase or decrease social inequality over the life course.

In Spain on the other hand, the welfare state is marginal, but the labour market follows a strong insider-outsider logic, whereby mid-career employees are strongly protected (Blossfeld et al 2006).¹ The public provision of adult education is characterised by a relatively large number of learning centres available in the country, selectivity in order to access formal adult education and low participation rates (INEM 2007). Spain is also characterised by a strong early retirement regime (Radl & Bernardi 2011), which makes it possible for workers with outdated qualifications to leave the workforce rather than have to retrain.² Therefore, there is lower pressure on employees and companies to participate in further education and lifelong learning. Thus, with regard to Spain, we expect a lower level of educational upgrading and that when upgrading happens it is concentrated amongst younger people. Because of the marginal welfare state with a strong family focus, we also expect greater gender differences in adult education in Spain. Due to the strong insider-outsider logic, we do not expect adult upgraders to be seen particularly favourably by employers.

¹ This has changed with the new legislation brought in February 2012.

² Generous early retirement schemes have been found to discourage older workers from participating in training (Fouarge & Schils 2009).

The UK is also characterised by a marginal welfare state, but in contrast to Spain, it has an open employment system exerting continuous pressure on adults to invest in their employability (Esping-Andersen 1993). Provision of formal adult education is also relatively broad, with individuals able to choose from further education colleges and universities. The latter also accept individuals without traditional entry qualifications and provide diplomas that are below degree level. So in the UK, we expect comparatively strong upgrading through adult education, though given the general level of inequality in the UK, adult education may also be associated with a high level of inequality. We also expect gender differences in the UK, since the welfare state does not support working mothers as well as in Sweden.

Finally, Russia is a very special case. As a former Socialist country, Russia went through a turbulent societal transformation during the last two decades with lots of unplanned job mobility and major life course changes (Berger et al 2001, Sabirianova 2002), as well as depreciation of human capital (Kapeliushnikov & Lukiyanova 2010). In the Soviet Union, there was an established system of adult education imposed by the state with factually every adult involved in education and/or training every 5-7 years (Zajda 2003), but due to the data constraints we do not analyse this period. After the collapse, adult education became more vocationally oriented in order to prevent structural unemployment and prepare qualified workers for the new economy. Despite important presidential decrees on adult education, free access and guaranteed funding, this sector suffered from a lack of adequate funding and many evening schools were forced to move to the private market and, as a result, many of them were closed or had to increase costs for learners (Berger et al 2001, Zajda 2003). In the empirical analysis, we will demonstrate the extent to which Russia is different in the rate and consequences of investments in adult education. On the one side, we expect adult education to be strong due to the massive labour market restructuring after the fall of the Soviet Union and the need for new skills and knowledge. However, due to poor state support and the very high general level of inequality, we expect adult education to be more due to individual motivation and, thus, to be more accessible for adult learners with higher resources.

Data

The main aim of this paper is to analyse the characteristics of educational upgraders after (approximately) age 25 and the impact of mature graduation on labour market outcomes, namely employment. With regards to the characteristics of upgraders, our main interest is in looking at the (previous) education level and labour market status. These two define the extent to which adult upgraders come from advantaged or disadvantaged backgrounds. We assume that the human capital accumulation strategies of men and women may diverge, particularly in adulthood when family constraints differ. For this reason, we run our models separately for men and women. As discussed in the introduction, we focus on employment as the outcome of interest as this is the first precondition for successful labour market careers. More specifically, we contrast employment to non-employment (see also Jenkins et al 2003).

We use the best longitudinal datasets available and comparable to some extent for each country, as described below. The data sets for the UK, Spain and Russia are highly comparable to each other, whereas the Swedish one differs slightly. It should be noted that the length of the time series varies from country to country, though for all countries we are able to analyse the first decade of the new millennium. Due to differences in data, it has been decided that instead of comparing coefficients and identical models, we develop the best modelling strategy for each single country within the confines of broad similarity.

For Sweden, we use linked population registers. For the purposes of this research, we focus on four birth cohorts: born in 1952, 1957, 1962 and 1967. Our measurement of adult education is a change in the highest level of education between the years 1994 and 2007. For the youngest cohort, this means an upgrade after the age of 26, whereas the oldest cohort was 41 years old in 1994 and 55 at the end of our observation period. For labour market outcomes, we look at whether or not a person was employed in 2007. We define being employed by having annual earnings in 2007 above 100,000 SEK (approximately 10,000 euros).³ As independent variables, we use a wide array of variables that measure the characteristics of individuals in the early 1990s. These include educational level, annual earnings, children in the household (and their ages), being in receipt of various forms of welfare payments, transitions between different labour force statuses, sector of employment and region of residence. In addition to this, we control for the birth cohort, foreign birth and age at immigration, as well as analysing men and women separately. Controlling for this wider variety of background variables related to labour market experiences and household composition is important for Sweden, for which we do not run longitudinal models but rather cross-sectional ones that use longitudinal information.

For the UK, we use British Household Panel Survey data for 1991-2008.⁴ The measurement of adult education is a change in the highest level of education that is reported at the age of 26 or above. Every year in the survey, individuals are asked whether they received a new qualification in the previous year. When the new qualification is higher than the previous one, this leads to educational upgrading. For labour market outcomes, we use employment in the current wave, controlling for nonemployment in the previous wave. In other words, we are measuring a change in employment status. We also control for employment in the wave preceding upgrading to assess whether there are different outcomes depending on whether the upgrader was already employed at the time of studying.

For Spain, we use the Catalonian Inequality Panel, where data is available from 2002 to 2009.⁵ Participation in adult education was measured as a change in the highest level of education at the age of 26 or above, and the methodology to identify individuals is similar to the UK. Models for examining the effect of adult education on labour market outcomes are the same as for the UK.

For Russia, we employ the Russia Longitudinal Monitoring Survey, covering the years 1994-2010.⁶ We define participation in adult education as a change in the highest level of educational attainment at the age of 26 or above. The effect of upgrading on labour market outcomes is measured with the same method as for the UK and Spain. We also control for employment status at the time of the upgrade, (previous) educational attainment, labour force status in the previous round, age, age squared, place of residence and round.

As methods, we use a combination of multivariate linear and logistic regression models, in some of which observations are nested within individuals (i.e. using multilevel techniques of random-intercept logistic regression). The tables provide information about the model used for each country, the dependent and independent variables.

3 We believe this measure best captures employment over the whole calendar year when survey questionnaires are not used, and it has also been used in previous research. Data on annual earnings comes from tax registers and is highly reliable. Setting a threshold at this level allows for casual employment, for example by full-time students, to remain classified as not being employed.

4 The British Household Panel Survey (BHPS) is run by the Institute for Social and Economic Research, University of Essex.

5 The Catalonian Inequality Panel (*Panel de Desigualtats de Catalunya*, PaD) is conducted by the Jaume Bofill Foundation in Barcelona, Spain.

6 Russia Longitudinal Monitoring survey (RLMS-HSE) is conducted by the National Research University Higher School of Economics and ZAO 'Demoscope' together with Carolina Population Center, University of North Carolina at Chapel Hill and the Institute of Sociology RAS. We only use data from round 5 onwards, when the whole sample was replaced.

Results

Participation in adult education

Participation in adult education is relatively high in Sweden. Figure 1 shows the age at which individuals first enrol in adult education (defined here as enrolment starting from age 27) by birth cohort, showing that by their mid-30s over 20% of each cohort has enrolled, and by the mid-40s close to 40% has done so. However, enrolment does not necessarily lead to an upgrade in education level.

The main results predicting educational upgrade between 1994 and 2007 can be seen in Table 1, with the results for women in the upper panel and those for men in the lower panel. A clear age/cohort effect can be seen: the younger are more likely to upgrade. On the other hand, the effect of previous education is less straightforward. For both men and women, it is individuals who already have tertiary education who are most likely to upgrade. In the full model, the women least likely to upgrade are those who have completed either of the two types of upper secondary education, followed by those with less than full compulsory education. This pattern is relatively similar for men. Therefore, the effect of prior education level fluctuates, with a tendency for the medium educated to have the lowest probability of upgrading.⁷ Overall, women tend to be more likely to upgrade than men.

With regards to the other independent variables (not shown in the table), the effect of earnings in the early 1990s is negative, although more clearly so for men than for women. Indicators of unemployment in the early 1990s tend to show a greater likelihood of upgrading. Both of these results suggest that individuals who are disadvantaged on the labour market are more likely to return to formal education. For both men and women, those working in the public sector in 1990 are more likely to upgrade than others. In general, children in the household increase the probability of upgrading, but more clearly for women than for men.

As a first look at educational upgrading in the UK, Figure 2 shows the proportion of individuals eligible for a certain upgrade who did indeed upgrade in the age range specified (secondary level qualifications under A-levels have been excluded from the figure and represent the smallest number of

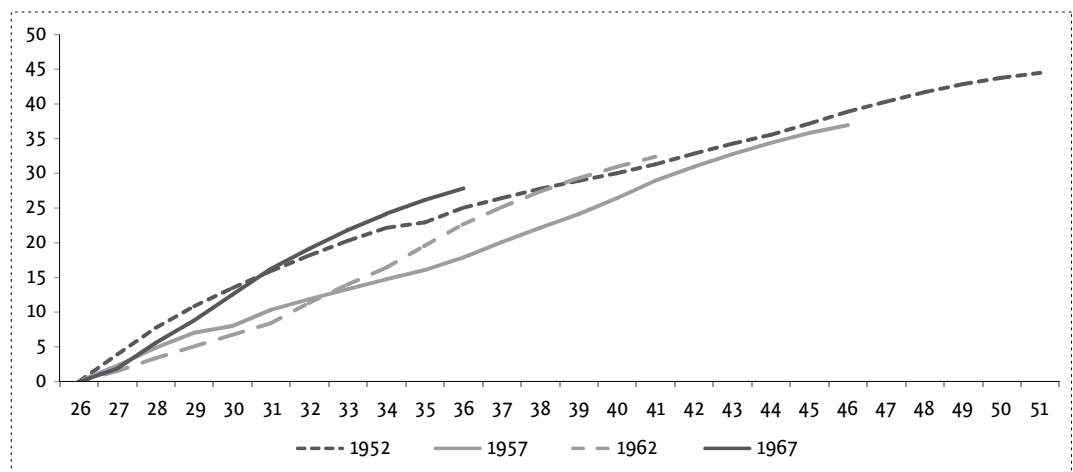


Figure 1: Age at first entry into adult education by birth cohort in Sweden (cumulative percentage)
Source: Swedish register data

⁷ The result for Sweden that males and females with a completed tertiary education are highly likely to upgrade should be interpreted with caution as some of the upgrading may reflect changes in the Swedish classification system.

Table 1: Determinants of educational upgrade between 1994 and 2007 in Sweden (OLS regression results)

	Model 1		Model 2	
	coef.	s.e.	coef.	s.e.
Women				
Level of education in 1994, reference category: compulsory education (9 years)				
Fewer than nine years	-0.113***	(0.006)	-0.078***	(0.006)
Two years upper secondary	-0.082***	(0.003)	-0.109***	(0.003)
Three years upper secondary	-0.099***	(0.003)	-0.107***	(0.003)
Some tertiary education	0.548***	(0.003)	0.511***	(0.003)
At least three years of tertiary	0.140***	(0.004)	0.100***	(0.004)
Birth cohort, reference category born 1967				
Born 1962	-0.056***	(0.002)	-0.071***	(0.003)
Born 1957	-0.103***	(0.002)	-0.118***	(0.003)
Born 1952	-0.164***	(0.003)	-0.160***	(0.003)
Constant	0.405***	(0.003)	0.417***	(0.006)
Number of individuals/observations	221,440		221,079	
Men				
Level of education in 1994, reference category compulsory education (9 years)				
Fewer than nine years	-0.051***	(0.005)	-0.043***	(0.005)
Two years upper secondary	-0.089***	(0.002)	-0.089***	(0.002)
Three years upper secondary	-0.041***	(0.003)	-0.055***	(0.003)
Some tertiary education	0.314***	(0.003)	0.285***	(0.003)
At least three years of tertiary	0.448***	(0.003)	0.389***	(0.003)
Birth cohort, reference category born 1967				
Born 1962	-0.069***	(0.002)	-0.065***	(0.002)
Born 1957	-0.093***	(0.002)	-0.088***	(0.002)
Born 1952	-0.107***	(0.002)	-0.099***	(0.003)
Constant	0.281***	(0.002)	0.314***	(0.005)
Number of individuals/observations	228,249		227,809	

Source: Swedish register data

*** p<0.01, ** p<0.05, * p<0.1

Model 1 includes controls for earnings in early 1990s. Model 2 adds controls for immigration background and from the early 1990s region of residence, sector of employment, welfare transfers, labour market transitions and children in the household.

upgrades). Due to the way that this has been calculated from the longitudinal survey data, it is likely that the true proportions are somewhat underestimated, but the differences between age groups and different qualifications should be unaffected. Overall, the figure shows that adults obtain all types of educational qualifications at a mature age, but tertiary qualifications under the degree level are by far the most likely to be obtained, both in absolute and proportional terms (only the latter shown in the figure).

The results of modelling educational upgrade in the UK show a trend of decrease by age (Table 2). Individuals with any type of secondary education or 'other' education are the most likely to upgrade, and all of them are roughly equally likely to do so. This is followed by individuals with no prior qualifications, whereas individuals with tertiary qualifications are the least likely to upgrade. This means that the effect of education follows a curvilinear pattern. The effects are relatively similar for men and women, and men and women tend to be equally likely to upgrade.

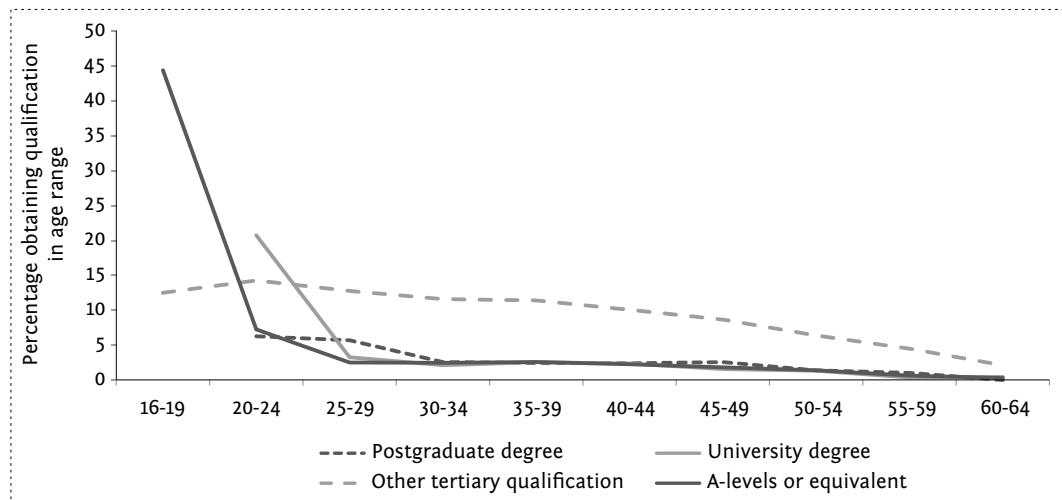


Figure 2: Proportion of educational upgraders within age range in the UK by level of qualification obtained

Source: BHPS waves 1-18

Table 2: Determinants of educational upgrade age 25-65 between 1991-2008 in the UK (random-intercept logistic regression, results as log odds ratios)

	All		Women		Men	
	coef.	s.e.	coef.	s.e.	coef.	s.e.
Highest (previous) educational qualification, reference category: university degree						
Teaching qualification	0.321	(0.270)	0.355	(0.309)	0.004	(0.613)
Other tertiary qualification	0.013	(0.136)	0.193	(0.181)	-0.211	(0.207)
A-levels or equivalent	2.098***	(0.127)	1.960***	(0.173)	2.233***	(0.189)
O-levels or equivalent	2.024***	(0.126)	1.972***	(0.170)	2.051***	(0.188)
Other secondary	1.958***	(0.139)	1.835***	(0.187)	2.062***	(0.209)
Other	1.921***	(0.275)	1.841***	(0.371)	1.974***	(0.405)
None	1.780***	(0.134)	1.681***	(0.182)	1.867***	(0.199)
Age	0.077***	(0.021)	0.151***	(0.029)	-0.003	(0.030)
Age squared	-0.001***	(0.000)	-0.002***	(0.000)	-0.000	(0.000)
Female	0.066	(0.052)				
Status in previous wave, reference category: employed						
Self-employed	-0.421***	(0.096)	-0.127	(0.156)	-0.561***	(0.121)
Unemployed	0.048	(0.114)	-0.212	(0.206)	0.139	(0.140)
Maternity leave	-1.218**	(0.508)	-1.153**	(0.508)	-14.689	(5133.8)
Family care	-0.764***	(0.098)	-0.699***	(0.100)	-2.072**	(1.011)
Full-time student	2.914***	(0.118)	2.831***	(0.141)	3.031***	(0.209)
Other	-0.883***	(0.130)	-0.772***	(0.170)	-1.001***	(0.200)
Observations	92,200		49,436		42,764	
Number of individuals	10,000		5,165		4,835	

Source: BHPS waves 1-18

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

All models controlling for wave.

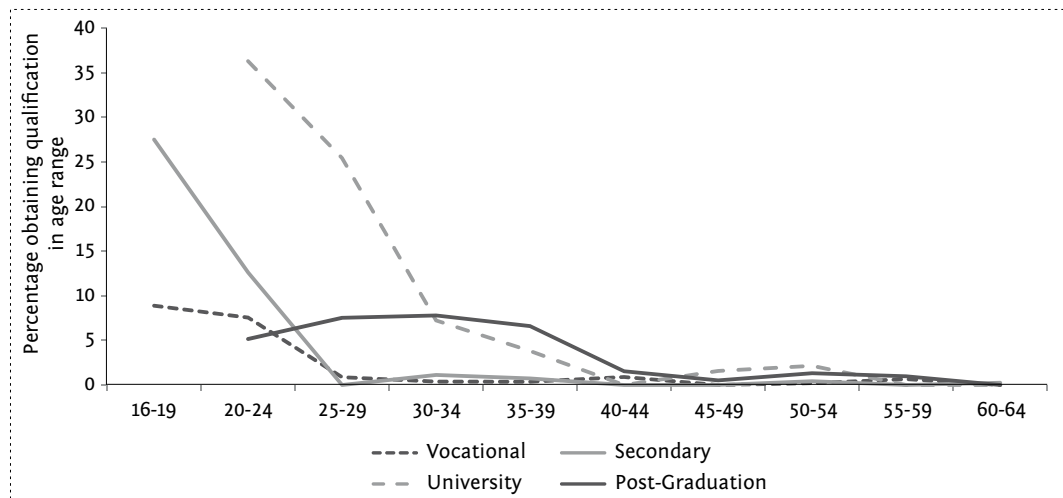


Figure 3: Proportion of educational upgraders within age range in Spain by level of qualification obtained

Source: PaD waves 2002-2009

Table 3: Determinants of educational upgrade age 25-65 between 2002-2009 in Spain (random-intercept logistic regression, results as log odds ratios)

	All		Women		Men	
	coef.	s.e.	coef.	s.e.	coef.	s.e.
Highest educational qualification in previous wave, reference category: university degree						
Upper secondary	-1.166***	(0.383)	-1.175**	(0.587)	-1.308**	(0.544)
Vocational	-1.290***	(0.328)	-1.045**	(0.449)	-1.560***	(0.484)
Compulsory	-1.697***	(0.321)	-1.050***	(0.395)	-2.356***	(0.522)
Age	-0.351***	(0.084)	-0.404***	(0.103)	-0.281**	(0.137)
Age squared	0.004***	(0.001)	0.004***	(0.001)	0.003*	(0.002)
Female	-0.574**	(0.235)				
Status in previous wave, reference category: employed						
Unemployed	0.500	(0.468)	0.029	(0.750)	0.792	(0.651)
Others inactive	0.501	(0.376)	0.246	(0.436)	0.447	(0.778)
Student	2.631***	(0.456)	2.326***	(0.547)	2.849***	(0.708)
Observations	13,451		6,950		6,501	
Number of individuals	3,902		1,998		1,904	

Source: PaD waves 2002-2009

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

All models controlling for wave.

In terms of labour force status, individuals who were full-time students in the previous wave are, unsurprisingly, the ones most likely to upgrade. Individuals outside the labour force for other reasons are least likely to upgrade. There is no difference between the employed and the unemployed, although self-employed men are less likely to upgrade. It should be noted that this refers to the status in the wave immediately preceding upgrading, which does not necessarily reflect the labour market situation when the individual began their studies – most clearly this is the case for full-time

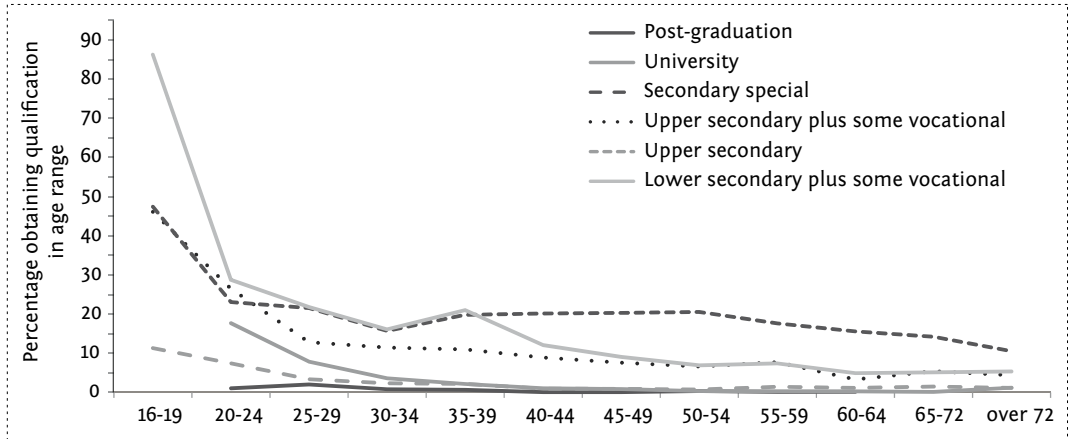


Figure 4: Proportion of educational upgraders within age range in Russia by level of qualification obtained

Source: RLMS-HSE waves 5-19

Table 4: Determinants of educational upgrade age 25-65 between 1995-2010 in the Russian Federation (random-intercept logistic regression, results as log odds ratios)

	All		Women		Men	
	coef.	s.e.	coef.	s.e.	coef.	s.e.
Highest educational qualification in previous wave, reference category: university degree						
Special secondary degree	2.717***	(0.195)	2.990***	(0.287)	2.493***	(0.273)
Upper secondary plus some vocational	2.882***	(0.192)	3.507***	(0.284)	2.197***	(0.262)
Upper secondary degree	3.691***	(0.204)	3.854***	(0.304)	3.453***	(0.275)
Lower secondary plus some vocational	5.704***	(0.230)	6.200***	(0.348)	5.178***	(0.307)
Lower secondary	6.155***	(0.233)	6.531***	(0.339)	5.735***	(0.324)
0-6 years of general school	5.367***	(0.265)	5.505***	(0.383)	5.112***	(0.366)
Age	-0.161***	(0.024)	-0.132***	(0.033)	-0.197***	(0.036)
Age squared	0.001***	(0.000)	0.001**	(0.000)	0.002***	(0.000)
Female	0.129*	(0.069)				
Status in previous wave, reference category: employed						
Self-employed/farmer	0.374**	(0.188)	0.307	(0.281)	0.398	(0.256)
Unemployed	-0.195*	(0.104)	-0.448***	(0.164)	0.004	(0.137)
Maternity leave	-0.356*	(0.214)	-0.469**	(0.215)	-14.208	(7840.3)
Family care (housewife)	-0.287*	(0.158)	-0.390**	(0.160)	0.542	(1.338)
Student	2.867***	(0.368)	2.549***	(0.506)	3.054***	(0.538)
Out of labour force	-0.383***	(0.109)	-0.185	(0.147)	-0.499***	(0.164)
Other	0.017	(0.217)	0.193	(0.285)	-0.150	(0.335)
Place of residence, reference category: Moscow and St. Petersburg						
In a city	-0.140	(0.118)	-0.164	(0.155)	-0.139	(0.182)
In an urban-type settlement	-0.309*	(0.168)	-0.393*	(0.229)	-0.259	(0.249)
In a village, derevnia, kishlak, aul	-0.777***	(0.129)	-0.709***	(0.170)	-0.871***	(0.198)
Observations	78,296		44,101		34,195	
Number of individuals	14,449		7,755		6,694	

Source: RLMS-HSE, Rounds 5-19

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

All models controlling for round

students. The generally high level of upgrading among employed individuals is an indication of a cumulative advantage trend, although this is somewhat counteracted by the trend related to the previous educational level.

The descriptive graph for Spain follows the logic of the UK, and results show a different pattern (Figure 3): obtaining educational qualifications at a mature age, specifically after the age of 40, is a rare phenomenon and those who do so are at the university level. The analysis of the characteristics of upgraders in Spain (Table 3) shows that women are less likely to upgrade in comparison to men, and the probability of educational upgrade decreases with age. Individuals with a university degree are the most likely to upgrade, indicating increasing educational inequality, and the effect of previous education is relatively similar for men and women. Full-time students are most likely to upgrade and no other status categories are significant in comparison to the employed.

For Russia, the patterns of participation in formal education by age groups show that adults upgrade to mostly upper secondary, lower secondary with some vocational and upper secondary with some vocational at mature ages (Figure 4).⁸ Upgrading to and within the different levels of secondary education may be a first step before further upgrading, since these levels are generally required for entry into higher levels of education. The rates are rather high and further analyses indicate that they were particularly high in the beginning of the period analysed (results not shown). This is possibly related to the transition period, as discussed above.

The results of modelling the determinants of educational upgrade at mature ages in Russia show that women are more likely to upgrade than men and upgrading decreases with age (Table 4). In general, adults with a tertiary degree are the least likely to upgrade. The highest probabilities are for individuals with lower secondary education (including those with some vocational) or below. Similarly to the UK, we observe a slight curvilinear effect of education for women and partly for men. With regards to previous labour force status, the highest probability of upgrading is for students. Unemployed women, women at home for family reasons (including maternity leave) and men out of the labour force are less likely to upgrade compared to the employed. Finally, individuals living in Moscow or St. Petersburg are the most likely to upgrade, and those in rural area the least likely to upgrade – this reflects access to educational institutions, which is highest in these two cities.

Labour market impacts of adult education

The effect of educational upgrading on employment probabilities in Sweden in 2007 is positive for both men and women, when compared to the education level before upgrading (i.e. in 1994), though the effect is approximately 1.5 times larger for women than for men (Table 5). The effect is somewhat reduced as more control variables are introduced but remains relatively large and highly significant in all models. The effects of the main independent variables are as expected: the higher the level of education, the more likely the individual is to be employed, whereas the older are less likely to be employed than the younger. Although it is difficult to make comparisons between the effect of adult education and that of previous education, the coefficient for adult education tends to be large enough to suggest that those who have obtained an upgrade after the age of 27 might not be disadvantaged compared to early graduates with regards to employment probabilities.

The main result from the models of change in employment in the UK is that educational upgrading benefits mainly women, but also men who work during their studies (Table 6). When female upgraders are compared to women with the education level that they had before upgrading, a significant positive effect on being employed can be seen, though it is attenuated by having been employed in the wave preceding the upgrade. This positive effect is so large that the probability of being employed is even significantly higher than the probability for women with the same education level that was obtained

⁸ Upper secondary plus some vocational education includes tertiary qualifications below degree level.

Table 5: Determinants of being employed in 2007 in Sweden (OLS regression results)

	Model 1		Model 2	
	coef.	s.e.	coef.	s.e.
Women				
Educational upgrade 1994-2007	0.066***	(0.002)	0.043***	(0.002)
Level of education in 1994, reference category compulsory education (9 years)				
Fewer than nine years	-0.106***	(0.006)	-0.035***	(0.006)
Two years upper secondary	0.127***	(0.003)	0.065***	(0.003)
Three years upper secondary	0.130***	(0.003)	0.078***	(0.003)
Some tertiary education	0.154***	(0.003)	0.092***	(0.003)
At least three years of tertiary	0.160***	(0.004)	0.099***	(0.004)
Postgraduate	0.148***	(0.019)	0.113***	(0.018)
Birth cohort, reference category born 1967				
Born 1962	0.013***	(0.002)	-0.010***	(0.002)
Born 1957	-0.005***	(0.002)	-0.026***	(0.003)
Born 1952	-0.066***	(0.002)	-0.056***	(0.003)
Number of individuals/observations	221,440		221,079	
Men				
Educational upgrade 1994-2007	0.038***	(0.002)	0.032***	(0.002)
Level of education in 1994, reference category compulsory education (9 years)				
Fewer than nine years	-0.043***	(0.005)	-0.006	(0.005)
Two years upper secondary	0.056***	(0.002)	0.029***	(0.002)
Three years upper secondary	0.060***	(0.003)	0.042***	(0.003)
Some tertiary education	0.096***	(0.003)	0.067***	(0.003)
At least three years of tertiary	0.060***	(0.003)	0.067***	(0.003)
Postgraduate	0.054***	(0.010)	0.089***	(0.010)
Birth cohort, reference category born 1967				
Born 1962	-0.072***	(0.002)	-0.052***	(0.002)
Born 1957	-0.111***	(0.002)	-0.083***	(0.002)
Born 1952	-0.160***	(0.002)	-0.127***	(0.003)
Number of individuals/observations	228,249		227,809	

Source: Swedish register data

*** p<0.01, ** p<0.05, * p<0.1

Model 1 includes controls for earnings in early 1990s.

Model 2 adds controls for immigration background and from the early 1990s region of residence, sector of employment, welfare transfers, labour market transitions and children in the household.

early in life. On the other hand, male upgraders also see better employment outcomes when they are compared to those with the education level that they had before upgrading, but this difference is only significant if they were employed at the same time.⁹ In comparison to early graduates, male adult upgraders are not significantly different. Overall, when it comes to employment probabilities, adult upgraders in the UK are not disadvantaged compared to early graduates, and the most advantaged group are women who were not employed during their studies.

Regarding the impact of adult upgrading on the probability of finding a job in Spain (Table 7), it can be observed that being a mature graduate does not have an impact on the likelihood of being employed in comparison to those who finished their studies in the expected age range. However, educational upgrading does tend to improve employment outcomes when upgraders are compared to

9 The combined coefficient of upgrading and being employed while upgrading is 0.50 (s.e. 0.11), which is significant at the 99% level.

Table 6: Determinants of change in employment status in UK, age range 26-65 (dependent variable: being employed, random-intercept logistic regression, results as log odds ratios)

	Reference for education: current education				Reference for education: education before upgrade							
	All	Women	Men	All	Women	Men	All	Women	Men			
	coef.	s.e.	coef.	s.e.	coef.	s.e.	coef.	s.e.	coef.	s.e.		
Adult upgrader (in this or a preceding wave)	0.286***	(0.088)	0.460***	(0.104)	-0.196	(0.162)	0.653***	(0.085)	0.843***	(0.100)	0.173	(0.158)
Employed while upgrading	-0.114	(0.102)	-0.286**	(0.121)	0.361*	(0.190)	-0.129	(0.102)	-0.294**	(0.121)	0.327*	(0.188)
Status in previous wave: non-employed	-3.402***	(0.034)	-3.261***	(0.041)	-3.724***	(0.063)	-3.404***	(0.034)	-3.263***	(0.041)	-3.728***	(0.063)
Highest educational qualification, reference category: university degree												
Postgraduate degree	-0.015	(0.133)	0.013	(0.171)	-0.042	(0.210)	0.095	(0.163)	0.043	(0.213)	0.142	(0.252)
Teaching qualification	-0.442***	(0.132)	-0.450***	(0.146)	-0.600**	(0.274)	-0.361**	(0.141)	-0.390**	(0.156)	-0.474	(0.295)
Other tertiary qual.	-0.442***	(0.070)	-0.429***	(0.086)	-0.477***	(0.120)	-0.268***	(0.078)	-0.214**	(0.098)	-0.324**	(0.128)
A-levels or equivalent	-0.637***	(0.081)	-0.570***	(0.101)	-0.740***	(0.136)	-0.451***	(0.086)	-0.406***	(0.107)	-0.501***	(0.140)
O-levels or equivalent	-0.596***	(0.074)	-0.640***	(0.090)	-0.537***	(0.131)	-0.499***	(0.076)	-0.518***	(0.092)	-0.497***	(0.131)
Other secondary	-0.927***	(0.089)	-1.011***	(0.108)	-0.776***	(0.156)	-0.747***	(0.089)	-0.821***	(0.108)	-0.613***	(0.154)
Other	-1.132***	(0.224)	-1.261***	(0.283)	-1.032***	(0.363)	-1.071***	(0.215)	-1.233***	(0.266)	-0.855**	(0.359)
None	-1.284***	(0.078)	-1.265***	(0.096)	-1.371***	(0.130)	-1.168***	(0.079)	-1.149***	(0.099)	-1.243***	(0.131)
Age	0.386***	(0.013)	0.376***	(0.016)	0.376***	(0.022)	0.385***	(0.013)	0.374***	(0.016)	0.375***	(0.022)
Age squared	-0.005***	(0.000)	-0.005***	(0.000)	-0.005***	(0.000)	-0.005***	(0.000)	-0.005***	(0.000)	-0.005***	(0.000)
Female	-0.941***	(0.042)					-0.935***	(0.042)				
Observations	95,062		50,682		44,380		95,062		50,682		44,380	
Number of individuals	10,215		5,248		4,967		10,215		5,248		4,967	

Source: BHPS waves 1-18

*** p<0.01, ** p<0.05, * p<0.1

All models controlling for wave.

Table 7: Determinants of change in employment status in Spain, age range 26-65 (dependent variable: being employed, random-intercept logistic regression, results as log odds ratios)

	Reference for education: current education						Reference for education: education before upgrade					
	All		Women		Men		All		Women		Men	
	coef.	s.e.	coef.	s.e.	coef.	s.e.	coef.	s.e.	coef.	s.e.	coef.	s.e.
Adult upgrader (in this or a preceding wave)	0.091	(0.284)	0.261	(0.408)	0.054	(0.414)	0.457*	(0.271)	0.529	(0.396)	0.449	(0.399)
Employed while upgrading	-0.019	(0.378)	-0.201	(0.535)	0.023	(0.566)	-0.066	(0.368)	-0.068	(0.522)	-0.121	(0.555)
Status in previous wave: non- employed	-3.651***	(0.068)	-3.522***	(0.078)	-3.810***	(0.126)	-3.650***	(0.064)	-3.519***	(0.078)	-3.812***	(0.126)
Highest educational qualification, reference category: university degree												
Postgraduate degree	0.631**	(0.316)	0.651	(0.429)	0.730	(0.493)	1.594***	(0.531)	1.213*	(0.620)	2.414**	(1.054)
Upper secondary	-0.686***	(0.127)	-0.826***	(0.153)	-0.450*	(0.231)	-0.561***	(0.123)	-0.755***	(0.151)	-0.185	(0.228)
Vocational	-0.803***	(0.112)	-0.872***	(0.136)	-0.691***	(0.197)	-0.749***	(0.109)	-0.849***	(0.136)	-0.543***	(0.194)
Compulsory	-1.043***	(0.099)	-1.208***	(0.113)	-0.824***	(0.177)	-1.000***	(0.092)	-1.197***	(0.113)	-0.690***	(0.173)
Age	0.256***	(0.026)	0.214***	(0.031)	0.345***	(0.048)	0.253***	(0.024)	0.211***	(0.031)	0.343***	(0.048)
Age squared	-0.003***	(0.000)	-0.003***	(0.000)	-0.004***	(0.001)	-0.003***	(0.000)	-0.003***	(0.000)	-0.004***	(0.001)
Female	-0.784***	(0.071)					-0.782***	(0.064)				
Observations	14,384		7,494		6,890		14,384		7,494		6,890	
Number of individuals	4,044		2,076		1,968		4,044		2,076		1,968	

Source: PaD waves 2002-2009

*** p<0.01, ** p<0.05, * p<0.1

All models controlling for wave.

Table 8: Determinants of change in employment status in Russia, age range 26-65 (dependent variable: being employed, random-intercept logistic regression, results as log odds ratios)

	Reference for education: current education				Reference for education: education before upgrade							
	All	Women	Men	All	Women	Men	All	Women	Men			
	coef.	s.e.	coef.	s.e.	coef.	s.e.	coef.	s.e.	coef.	s.e.		
Adult upgrader (in this or a preceding wave)	-0.619***	(0.092)	-0.613***	(0.122)	-0.630***	(0.142)	-0.345***	(0.094)	-0.320**	(0.125)	-0.372**	(0.145)
Employed while upgrading	0.725***	(0.108)	0.703***	(0.146)	0.727***	(0.164)	0.727***	(0.109)	0.699***	(0.146)	0.723***	(0.164)
Status in previous round: non-employed	-3.070***	(0.033)	-3.342***	(0.043)	-2.704***	(0.051)	-3.069***	(0.033)	-3.340***	(0.043)	-2.703***	(0.051)
Highest educational qualification, reference category: university degree												
Postgraduate degree	0.573***	(0.162)	0.646***	(0.237)	0.536**	(0.226)	0.649***	(0.178)	0.631**	(0.248)	0.672***	(0.258)
Special secondary degree	-0.359***	(0.048)	-0.421***	(0.059)	-0.271***	(0.082)	-0.347***	(0.049)	-0.406***	(0.061)	-0.266***	(0.085)
Upper secondary plus some voc.	-0.561***	(0.047)	-0.666***	(0.064)	-0.404***	(0.071)	-0.544***	(0.049)	-0.623***	(0.066)	-0.409***	(0.074)
Upper secondary degree	-0.782***	(0.058)	-0.863***	(0.078)	-0.626***	(0.089)	-0.726***	(0.060)	-0.804***	(0.080)	-0.578***	(0.092)
Lower secondary plus some voc.	-0.870***	(0.101)	-1.108***	(0.164)	-0.682***	(0.133)	-0.949***	(0.095)	-1.128***	(0.151)	-0.794***	(0.127)
Lower secondary	-0.986***	(0.099)	-1.059***	(0.131)	-0.832***	(0.153)	-1.123***	(0.087)	-1.223***	(0.114)	-0.933***	(0.135)
0-6 years of general school	-1.434***	(0.147)	-1.644***	(0.224)	-1.265***	(0.201)	-1.345***	(0.130)	-1.616***	(0.203)	-1.137***	(0.177)
Age	0.297***	(0.012)	0.338***	(0.017)	0.237***	(0.018)	0.295***	(0.012)	0.335***	(0.017)	0.236***	(0.018)
Age squared	-0.004***	(0.000)	-0.004***	(0.000)	-0.003***	(0.000)	-0.004***	(0.000)	-0.004***	(0.000)	-0.003***	(0.000)
Female	-0.267***	(0.034)					-0.267***	(0.034)				
Place of residence, reference category: Moscow and St. Petersburg												
In a city	0.092*	(0.054)	0.165**	(0.070)	-0.032	(0.088)	0.091*	(0.055)	0.162**	(0.070)	-0.032	(0.088)
In an urban-type settlement	-0.498***	(0.078)	-0.298***	(0.103)	-0.804***	(0.122)	-0.500***	(0.078)	-0.297***	(0.103)	-0.806***	(0.123)
In a village, derevnia, kishlak, aul	-0.523***	(0.060)	-0.391***	(0.077)	-0.738***	(0.095)	-0.521***	(0.060)	-0.389***	(0.077)	-0.734***	(0.095)
Observations	78,210		44,023		34,187		78,210		44,023		34,187	
Number of individuals	14,445		7,753		6,692		14,445		7,753		6,692	

Source: RLMS-HSE, Rounds 5-19

*** p<0.01, ** p<0.05, * p<0.1

All models controlling for round

the education level that they had before upgrading, although this effect is relatively weak – probably due to the small sample size – and only significant at the 90% level in the model with men and women together. The effect of being employed while upgrading is very slightly negative and not significantly different from zero.

Finally, the results for Russia on the effect of upgrading at a mature age on the probability of becoming employed (Table 8) find that contrary to the UK, the effect of upgrading at a mature age has a negative impact compared to those who finished their schooling at a young age. However, the effect is negative only for those who were not employed at the time of upgrading. The negative effect for those not employed whilst upgrading remains even when comparing to those with the pre-upgrade educational attainment. With this latter comparison group, those who were employed during the upgrading are seen to benefit.¹⁰ The main conclusion here is that adult upgraders in Russia are only advantaged regarding employment probabilities if they were also employed before the upgrade. This may indicate that formal adult education increases inequality in Russia, being more accessible for the employed and also benefiting them more regarding labour market outcomes.

Discussion and conclusion

The main aim of this study was to compare the patterns of participation in formal education later in life and the impact of adult upgrading on employment in Russia, Spain, Sweden and the UK. In this last section, the findings are discussed in a comparative way in terms of the role of adult education in reducing social inequalities.

Does adult upgrading contribute to trends of cumulative advantage over the life course? The answer found for the four countries is ‘only to a limited extent’, although very different specificities were found. Our results indicate that Sweden shows a pattern of upgrading later in life, where the more disadvantaged amongst those with higher education levels are the ones more prone to do so. The Spanish case is relatively similar, as it the most highly educated who are also most likely to upgrade, but upgraders do not tend to be particularly likely to be employed (full time) at the time of studying. We interpret our results regarding labour force status with some caution, since we mostly do not know what full-time students were doing prior to the upgrade. However, it seems that for the UK and Russia, employed persons are relatively more likely to upgrade, which may increase inequality, but at the same time upgraders tend to be less educated to begin with. With regards to gender, Spain is the only country where men are more likely to upgrade than women. In the other countries, the tendency is either equal or women are more likely to do so than men, reflecting women’s increased educational attainment over the last decades.

To the extent that upgraders come from disadvantaged backgrounds, our results on employment probabilities indicate that adult education tends to counter patterns of cumulative advantage. We found positive effects in all countries, though some were conditional on the employment status of upgraders during their studies. In particular, the results from Russia and for men in the UK indicate that adult upgraders need to be employed at the same time as they study in order to benefit from their upgrade. The results for these groups may be due to selection issues, with more motivated Russians and British men being able to have a job at the same time as they are studying. On the other hand, employers may also prefer workers who do not have gaps in their employment histories, even if the gap is for full-time education. In these cases, adult education may contribute to cumulative advantage. In Russia specifically, it may also be that employed individuals are financially better able to access higher quality education, whereas those not employed have to rely on state-supported education that may be of a poorer quality and, therefore, not as valuable on the labour market.

¹⁰ The combined coefficient of upgrading and being employed while upgrading is 0.35 (s.e. 0.09) for women and 0.31 (s.e.0.09) for men, both of which are significant at the 99% level.

The main difference between Russia and the UK is among women who were not employed at the time of studying. This group is the one to benefit the most from upgrading in the UK, whereas in Russia they are possibly the worst off. It is possible that in the UK and in Sweden some women who are returning to the labour market after childrearing do so by retraining themselves before re-entering employment. This may be a particularly motivated group of women, and this is reflected in their employment probabilities (Stenberg et al 2011).

Returning to the institutional effects, our results confirm our expectation of relatively little upgrading in Spain. Moreover, the upgrading that does happen tends to be related to delays in graduation from university rather than returning to formal education after being in the labour market for a substantial period of time. The fact that the Spanish welfare state does not support upgrading can also be seen from the male advantage, which was not found in any of the other countries. On the other hand, the absence of a female advantage in the UK, which is otherwise found at every level of education, may also be due to the weakness of the welfare state. However, this cannot explain the advantage of women in Russia. The most widespread benefit from upgrading seems to come in Sweden, where we would argue that adult education is most accepted and, therefore, least scarring for the individual.

Our results suggest that adult education is affected by the opportunities afforded by the welfare state in terms of enabling the participation of different segments of society. At the same time, in order for adult education to have beneficial effects in terms of employment, this type of learning needs to be accepted as legitimate for all groups of society and not something that indicates deficiencies in terms of skills or competencies. Overall, the similarity of results from the UK and Russia may reflect the fact that they are both liberal welfare states, where motivated individuals are likely to be driven to adult education in order to adapt to changing labour markets.

Finally, adult education does not fully fit with general social inequality patterns in the four countries. As measured by the Gini coefficient, Russia is the most unequal of our four countries, with the UK and Spain having relatively similar levels, and Sweden the lowest. When it comes to inequality patterns related to educational attainment, Russia and the UK show the most equalisation through adult education – at least in relative terms. On the other hand, when it comes to inequality patterns related to labour market outcomes, equalisation can be seen in Sweden and the UK, weakly in Spain, but not in Russia.

References

- Albrecht, J., van den Berg, G. & Vroman, S. (2005). The Knowledge Lift: The Swedish Adult Education Program That Aimed to Eliminate Low Worker Skill Levels, *Discussion Paper Series 1503*. Institute for the Study of Labor.
- Berger, M.C., Earle, J. S. & Sabirianova, K. Z. (2001). Worker Training in a Restructuring Economy: Evidence from the Russian Transition, *Discussion Paper Series 361*. Institute for the Study of Labor.
- Blossfeld, H.-P., Buchholz, S. & Hofäcker, D. (eds.) (2006). *Globalization, uncertainty and late careers in society*. London and New York: Routledge.

- Cunha, F., Heckman, J., Lochner, L. & Masterov, D. (2006). Interpreting the Evidence on Life Cycle Skill Formation, in E. Hanushek & F. Welch (eds.), *Handbook of the Economics of Education* (697-812). Amsterdam: North Holland.
- DiPrete, T. A. & Eirich, G. M. (2006). Cumulative Advantage as a Mechanism for Inequality: A Review of Theoretical and Empirical Developments, *Annual Review of Sociology* 32: 271-297.
- Egerton, M. (2000). Pay Differentials between Early and Mature Graduate Men: The role of state employment, *Journal of Education and Work* 13(3): 289-305.
- Egerton, M. (2001). Mature Graduates I: Occupational attainment and the effects of labour market duration, *Oxford Review of Education* 27(1): 135-150.
- Ekröm, E. (2003). Earning effects of adult secondary education in Sweden, *Working Paper* 16. Institute for Labour Market Policy Evaluation.
- Elman, C. & O'Rand, A. M. (1998). Midlife Entry into Vocational Training: A Mobility Model, *Social Science Research* 27(2): 128-158.
- Elman, C. & O'Rand, A. M. (2004). The Race Is to the Swift: Socioeconomic Origins, Adult Education, and Wage Attainment, *American Journal of Sociology* 110(1): 123-160.
- Esping-Andersen, G. (1996). Positive-Sum Solutions in a World of Trade-Offs? in G. Esping-Andersen (ed.), *Welfare States in Transition. National Adaptations in Global Economies* (256-269). London: Sage.
- Esping-Andersen, G. (ed.) (1993). *Changing classes. Stratification and mobility in post-industrial societies*. London: Sage.
- Fouarge, D. & Schils, T. (2009). The effect of early retirement incentives on the training participation of older workers. *Labour* 23(s1): 85-209.
- Heckman, J. (2000). Policies to Foster Human Capital. *Research in Economics* 54(1): 3-56.
- Heckman, J. & Vytalil, E. (2000). Identifying the Role of Cognitive Ability in Explaining the Level of and Change in the Return to Schooling, *Working Paper* 7820. The national bureau of economic research (NBER).
- Holmlund, B., Liu, Q. & Nordström Skans, O. (2007). Mind the gap? Estimating the effects of postponing higher education, *Oxford Economic Papers* 60(4): 683-710.
- Hällsten, M. (2011). Late Entry in Swedish Tertiary Education: Can the Opportunity of Lifelong Learning Promote Equality Over the Life Course? *British Journal of Industrial Relations* 49(3): 537-559.
- INEM (2007). *Continuing education and training for adults in Spain*. Madrid: Servicio Público Empleo Estatal [Spanish Public Employment Service].
- Jacobson, L., Lalonde, R. J. & Sullivan, D. (2005). The impact of community college restraining on older displaced workers: should we teach old dogs new tricks? *Industrial and Labor Relations Review* 58(3): 398-415.
- Jarvis, P. & Pöggeler, F. (eds.) (1994). *Developments in the Education of Adults in Europe*. Frankfurt-am-Main: Peter Lang GmbH.
- Jenkins, A., Vignoles, A., Wolf, A. & Galindo-Rueda, F. (2003). The determinants and labour market effects of lifelong learning, *Applied Economics* 35(16): 1711-1721.
- Johnston, R. (1994). Jobs, Unemployment and Education for Work, *Studies in Continuing Education* 16(1): 37-51.
- Kapeliushnikov, R. & Lukiyanova, A. (2010). *Transformacija chelovecheskogo kapitala v rossijskom obshhestve [Transformation of human capital in the Russian society]*. Moscow: Fond "Liberal'naja missija" ["Liberal Mission" Foundation].
- Klausen, T. B. (2011). *Catching up qualifications or fooling around? A longitudinal study of graduation age and earnings*, paper presented at the Danish Conference of Sociology 2011, Denmark, 20 January.
- Leigh, D. E. & Gill, A. M. (1997). Labour market returns to community colleges: evidence for returning adults, *Journal of Human Resources* 32(2): 334-53.
- Light, A. (1995). The Effects of Interrupted Schooling on Wages, *The Journal of Human Resources* 30(3): 472-502.

- Maurin, E. & Thesmar, D. (2003). Changes in the Functional Structure of Firms and the Demands for Skill, *Discussion Papers* 3831. Center for economic policy research.
- Merton, R. K. (1968). The Matthew effect in science, *Science* 159(3810): 56-63.
- OECD (2002). *Beyond Rhetoric: Adult Learning Policies and Practices*. Paris: OECD.
- OECD (2006). *Promoting Adult Learning*. Paris: OECD.
- Purcell, K., Wilton, N. & Elias, P. (2007). Hard Lessons for Lifelong Learners? Age and Experience in the Graduate Labour Market, *Higher Education Quarterly* 61(1): 57-82.
- Radl, J. & Bernardi, F., (2011). Pathways from Work to Retirement and Old Age Inequality in Spain, in H.-P. Blossfeld, S. Bucholz & K. Kurz (eds.), *Aging Populations, Globalization and the Labor Market: Comparing Late Working Life and Retirement in Modern Societies* (121-147). Cheltenham: Edward Elgar.
- Schuetze, H. G. & Slowey, M. (2002). Participation and exclusion: A comparative analysis of non-traditional students and lifelong learners in higher education, *Higher Education* 44(3-4): 309-327.
- Shavit, Y. & Müller, W. (eds.) (1998). *From School to Work. A Comparative Study of Educational Qualifications and Occupational Destinations*. Oxford: Clarendon Press.
- Silles, M. A. (2007). Adult education and earnings: evidence from Britain, *Bulletin of Economic Research* 59(4): 313-326.
- Sabirianova, K. Z. (2002). The Great Human Capital Reallocation: An Empirical Analysis of Occupational Mobility in Transitional Russia, *Journal of Comparative Economics* 30(1): 191-217.
- Stenberg, A. (2011). Using Longitudinal Data to Evaluate Publicly Provided Formal Education for Low Skilled, *Economics of Education Review* 30(6): 1262-1280.
- Stenberg, A., de Luna, X. & Westerlund, O. (2011). Does Formal Education for Older Workers Increase Earnings? Analyzing Annual Data Stretching over 25 Years. *Working Papers in Economics* 8. Swedish Institute for Social Research.
- Taniguchi, H. (2005). The Influence of Age at Degree Completion on College Wage Premiums, *Research in Higher Education* 46(8): 861-881.
- Tuijman, A. C. (1992). The expansion of adult education and training in Europe: trends and issues, *International Review of Education* 38(6): 673-692.
- Vanttaja, M. & Järvinen, T. (2006). The young outsiders: the later life courses of “drop-out youths”, *International Journal of Lifelong Education* 25(2): 173-184.
- Woodfield, R. (2011). Age and first destination employment from UK universities: are mature students disadvantaged? *Studies in Higher Education* 36(4): 409-425.
- Zajda, J. (2003). Lifelong Learning and Adult education: Russia meets the West, *International Review of Education* 49(1-2): 111-132.
- Zhang, X. & Palameta, B. (2006). Participation in Adult Schooling and its Earnings Impact in Canada. *Analytical Studies Branch Research Paper* 277. Statistics Canada.

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