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# INTERGENERATIONAL EDUCATIONAL MOBILITY IN EUROPEAN SOCIETIES BEFORE AND AFTER THE CRISIS

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## 1. Posing the problem

Social mobility studies traditionally investigate how the social status of parents affects the social status of their children. Assuming that occupation is a good indicator of social status, social mobility refers to occupational mobility – and typically to the degree of (im)mobility – by comparing a father’s occupation to that of his son.<sup>1</sup> These studies tend to follow a *normative* approach: a high degree of social mobility is ‘good’; strong immobility is ‘bad’. The less parental status influences children’s social chances, the better for society. Whether it is a good thing or a bad thing, the fact is that countries tend to be judged, international comparison is crucial and countries are ranked according to the opportunities for social mobility, which is a sign of an open society.

The seminal book by Erikson and Goldthorpe (1992) is basic reference for all research in social mobility, for at least two reasons. On the one hand, they study class mobility, based on the so-called ‘EGP’ class schema – following the initials of three authors: Erikson, Goldthorpe and Portocarero (1979). In their view, the EGP class schema combines the approaches taken by Marx (based on ownership) and Weber (based on marketability). In other words, class positions involve all goods and resources that stem from education, income, wealth or network connections. On the other hand, absolute and relative mobility are separated in the analysis, the latter being free of the effect of change in the class structure. This is called social fluidity and it is the chief indicator of the openness of society.

Nevertheless, the investigation by Erikson and Goldthorpe (1992) is comparative in nature, and Hungarian data are also analysed. A follow-up project led to an edited volume by Breen (2004), containing a range of country studies that analyse social fluidity and apply the same class schema for the purpose.

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<sup>1</sup> On social mobility, see Sorokin (1927) and Lipset and Zetterberg (1970) generally; and Andorka (1983; 1990) for Hungary, in particular.

Two further comparative studies might be mentioned; both are secondary analyses and use Rounds 1–5 of the European Social Survey (ESS) (Eurofound, 2017; Bukodi et al., 2017). These analyses investigate absolute and relative mobility (social fluidity) and apply the so-called European Socio-economic Classification (ESeC), a conceptually and empirically improved version of EGP (Rose and Harrison, 2007; 2010).

Country ranking by mobility chances is a frequent practice, involving ‘league tables’. A critical overview by Blanden (2013) deals with rankings based on income, school and class mobility; it discusses the consistency and divergence of various results, as well as the methods applied in constructing rankings. The findings of Erikson and Goldthorpe (1992) and Breen (2004) reveal differences in the country rankings for social fluidity based on class mobility. This is partly due to temporal variance: Erikson and Goldthorpe analyse data only from the 1960s, while chapters in the volume edited by Breen refer to changes over time from the 1970s to the 1990s. In this regard, social fluidity in Hungary has increased (Breen, 2004: Figures 3.3 and 3.5).<sup>2</sup>

A decade or so later, however, a comparative mobility analysis based on ESS data reveals a low level of both absolute and relative mobility in Hungary. The study – by the European Foundation – reports high immobility in absolute terms for both men and women (Eurofound, 2017: Figures 4–5). This may be because temporal changes in the Hungarian class structure are particularly small (Eurofound, 2017: Figures 3 and 6a); accordingly, there is little scope for structural mobility between two generations (parents and children). In the case of relative mobility, the same study classifies European countries into four groups (after putting respondents into three birth cohorts): invariable fluidity, stabilizing fluidity, increasing fluidity and decreasing fluidity (Eurofound, 2017: Figure 8). Hungary is in the first group: there is no change in social fluidity.

Another study that used the same ESS data but analysed only men came up with a more negative picture. Hungary has one of the lowest scores for absolute mobility (Bukodi et al., 2017: Figure 1) and is characterized by low upward and high downward mobility. This latter type of combination is typical of other post-socialist countries, like Poland, Estonia, Latvia and Russia (Bukodi et al., 2017: Figure 2). In the case of relative mobility (social fluidity), Hungary occupies last position (Bukodi et al., 2017: Figures 4 and 7).

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<sup>2</sup> The Hungarian country chapter in this volume is based on data provided by the Hungarian Central Statistical Office from 1973, 1983, 1992 and 2000, and is authored by Róbert Bukodi (2004).

There are several reasons for the discrepancies between the studies. The analysis by the European Foundation focused on changes over time, while Bukodi et al. examined the extent of fluidity. The age range differed for the two studies: for the former, it was 35–75 years; for the latter it was 25–64 years. And since the ESS does not apply International Standard Classification of Occupations (ISCO) coding for the father, it cannot be ruled out that there are coding deviations between the analyses.

## 2. The aim of the study, research issues

This analysis investigates social openness from the perspective of educational mobility in a descriptive and exploratory manner. The importance of such an approach, with its focus on schooling, is highlighted by the status attainment models developed by Blau and Duncan (1967). Schooling had an effect in these models, and intergenerational educational mobility (comparing the education of the father and his offspring) has been studied for decades (Hauser and Featherman, 1976). International comparisons are crucial in this respect, too (Shavit and Blossfeld, 1993). Inequality of educational opportunities and the influence of social origin on school progression are evergreen research topics (Coleman, 1966; Boudon, 1974; Erikson and Jonsson, 1996), and the normative approach again plays a big role when societies are compared.<sup>3</sup> Structural modifications matter, and educational expansion – particularly in secondary and higher education – affects educational mobility and the odds of school progression. Controlling for this effect is essential when school transitions from primary to secondary and from secondary to tertiary level are investigated (Mare, 1981).

This paper analyses educational mobility in a comparative manner, but it places a major emphasis on the position of Hungary in the rank order of countries. A further research issue refers to comparison of educational mobility *before* and *after* the economic crisis: has the effect of social origin on educational attainment increased or decreased?

In recent research findings, Hungary scores better in the rank order of countries, in terms of the correlation between the number of years parents and their children spent in education (Blanden, 2013: Figure 4). Another analysis of the ESS data from 2010 shows a higher level for similar correlations in the former socialist and the Southern European countries (above 0.5) than in Northern or

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<sup>3</sup> The Programme for International Student Assessment (PISA) reports provide an even better example of ranking countries, where the effect of social origin on school achievement is examined and the strength of this association characterizes educational systems in societies.

Western European societies. Of the 20 countries investigated, the highest values appear for Bulgaria, Hungary and Poland (Schneebaum et al., 2014: Figure 2).

### 3. Data and methods

Data from the first seven rounds of the European Social Survey are used in this analysis.<sup>4</sup> The data can be split into two periods: Rounds 1–4 (2002, 2004, 2006, 2008) represent an era before the economic crisis, while Rounds 5–7 (2010, 2012, 2014) cover the post-crisis times. In the statistical analysis, a dummy variable is used, where a value of 1 indicates observations after the crisis and a value of 0 denotes cases before the crisis. This provides a rough way of measuring the influence of the economic crisis, because while there are older respondents in the post-crisis data who attended school in the years before the crisis, ESS data do not provide proper information on the educational history of respondents.

The analysis covers only *16 countries* – those that participated in all seven data collections. This imposes a limitation in terms of the data, but analysing different countries for the period before and after the crisis would generate heterogeneity in the data, with an effect on the results. In order to consider only respondents with an expected complete educational history, the lower age limit is set at 25 years, and there is an upper age limit of 95 years. In the end, the number of cases examined is about 170,000.

Education is measured by a variable with *four categories*: primary (ISCED 0–1), lower secondary (ISCED 2), upper secondary (ISCED 3–4) and tertiary (ISCED 5–6). This means that educational mobility is reflected in a 4x4 matrix (parental education by respondent education). For respondents, there is another indicator of level of schooling: the *years of education* completed. Finally, a dummy variable is used for the analysis of educational mobility chances; this variable indicates whether or not the offspring has *attained a college degree*.

In intergenerational social mobility research, there is a permanent dilemma of how to take both the father and the mother into account. For class mobility, selecting only the father is the most frequent solution. For educational mobility, applying the so-called *principle of dominance* is the typical practice,

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<sup>4</sup> This is the database ESS1-7e01 as published by the NSD, Norwegian Centre for Research Data, Norway – Data Archive and distributor of ESS data for ESS ERIC. No other cumulative dataset with the most recent data from Round 8 is available yet.

where the education of both parents is counted in some way. This study investigates educational mobility in *four ways*:

1. Conventional tabular analysis (4x4 matrices), where the offspring's education is measured using the four categories mentioned above and parental education is measured by the education of either the father or the mother, depending on which is higher (= dominance principle).
2. When the number of years of education defines the respondent's and the parent's education, the correlation between parental education and children's education is derived from the principal component analysis of the father's and the mother's education.<sup>5</sup>
3. Calculating the *educational premium* (= more years of education) for the respondent if the parents have a higher level of schooling on the basis of the dominance principle.
4. The odds of obtaining a college degree depending on social origin measured by the principal component of the father's and mother's education.

Temporal change is considered for all four analytical steps comparing the periods before and after the crisis. All results are presented in the form of country rankings. The first three methods represent a simple descriptive approach (percentages, means), while the last method is logistic regression analysis.

## 4. Results<sup>6</sup>

### 4.1 Absolute mobility/immobility rates

As a first step, absolute mobility rates (upward, downward mobility, immobility) are presented for intergenerational educational mobility. Immobility varies between 35 and 70 per cent in the 16 countries. As *Figures 1* and *2* show, educational mobility after the economic crisis is low in Portugal, Germany, Switzerland and Hungary, while there is a higher level in Sweden, the Netherlands, Ireland and Poland.

Downward moves tend to be rare for educational mobility; higher rates appear for the United Kingdom before the economic crisis and for Denmark and Germany after the economic crisis. Upward mobility is much more frequent: it increased in half of the countries examined and decreased in the other half (*Figure 3*). A big increase is more typical in countries where upward mobility

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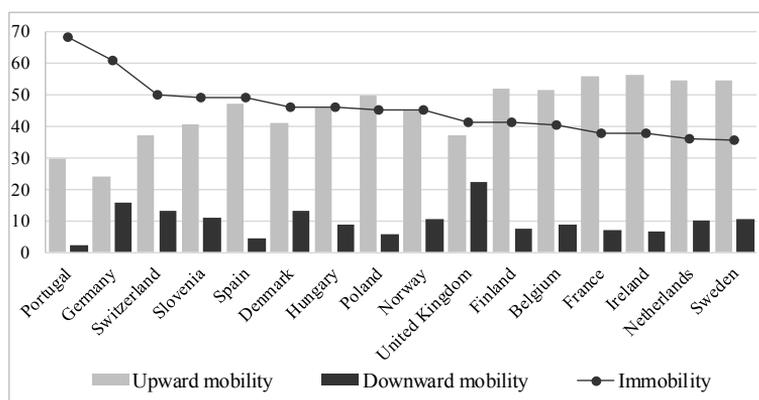
<sup>5</sup> The principal component analysis ended up with one component with an Eigenvalue of 1.682 and this component explained 84 per cent of the total variation in father's and mother's education.

<sup>6</sup> Gertrúd Dóra Kiss, a student in the Sociology and Quantitative Methods programme at the University of Warwick, provided assistance in the empirical analysis.

happened to be lower (UK, Poland, Portugal, Germany); these countries improved their position. Hungary is last but one in the rank order, with a strong decline in upward educational mobility.

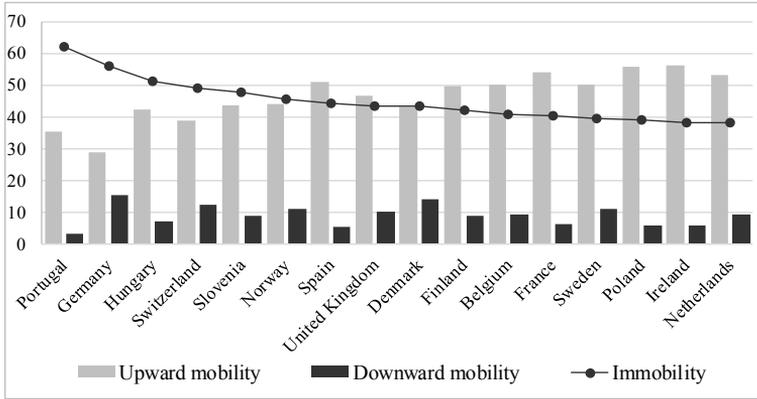
For a better interpretation of the results in *Figure 3*, it should be noted that upward educational mobility in Sweden was among the highest before the crisis; after the crisis – and despite a fall in upward mobility rates – every second respondent still has a higher level of schooling than his/her parents. Furthermore, upward mobility in countries like Portugal and Germany is lower in absolute terms than in Hungary, even though the trend is rising in the first two countries and falling in the third. Poland differs again, because upward educational mobility used to be high and has kept on increasing. All these results refer to observed (absolute) mobility, meaning that modifications to the educational structure – e.g. an expansion in secondary and tertiary education – are not filtered out.

Figure 1 *Absolute educational mobility rates before the crisis, 2002–08 (per cent)*



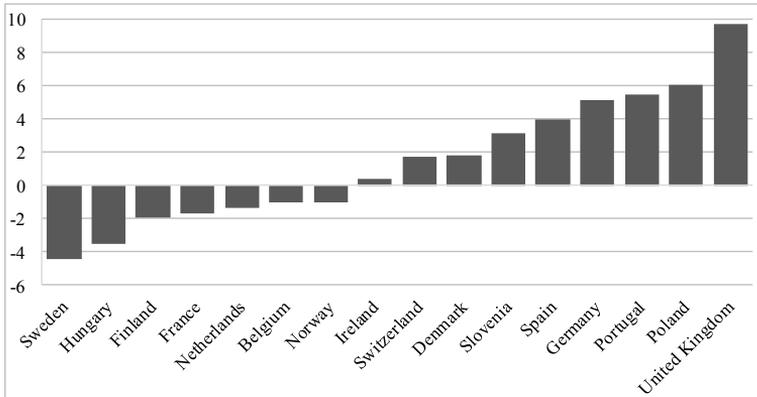
Note: Countries are ranked according to immobility; calculations are based on ESS Rounds 1–7.

2010–14 (per cent)



Note: Countries are ranked according to immobility; calculations are based on ESS Rounds 1–7.

Figure 3 Change in upward mobility rates between the periods 2002–08 and 2010–14 (per cent)



Note: Countries are ranked from decrease to increase in upward mobility ('from bad to good'); calculations are based on ESS Rounds 1–7.

#### 4.2 Correlation between the education of parents and of their children

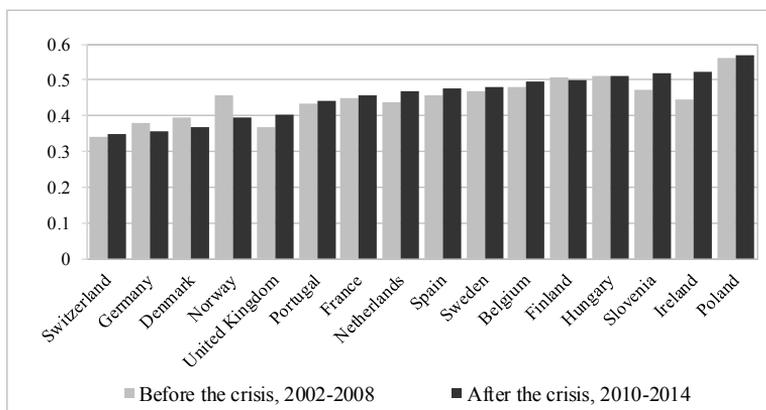
A simple and frequently used measure for the association between the education of parents and of their children is presented next. This is the correlation between the number of years of education completed by the respondent and

his/her parents, as measured by the principal component derived from the father's and mother's schooling. Of the 16 countries, this association is weakest in Switzerland (0.37) and strongest in Poland (0.54). The same correlation is similarly high (0.52) in Hungary.

Figure 4 displays the rank order of the countries for the periods before and after the economic crisis. The correlation is over 0.5 in Poland, Ireland, Slovenia and Hungary, in that order. Relatively lower values (below 0.4) appear for Norway (after the crisis), Denmark, Germany and Switzerland.

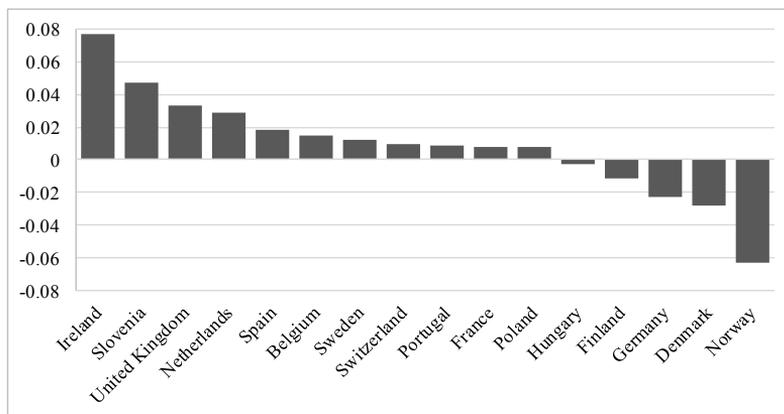
Figure 5 provides information on changes in this association over time, comparing the periods before and after the economic crisis. The correlation between parental and child education declined in Norway, Denmark and Germany, while the association increased in Ireland, Slovenia, the UK and the Netherlands. No substantial change occurred in Hungary: the correlation between parental education and the level of schooling attained by the respondent remained steady.

Figure 4 *Correlation between parental and child education before and after the crisis*



Note: Countries are ranked by the values after the crisis; calculations are based on ESS Rounds 1–7.

Figure 5 *Change in correlation between parental and child education between the periods 2002–08 and 2010–14*



Note: Countries are ranked from increase to decrease in the association between parental background and level of schooling attained ('from bad to good'); calculations are based on ESS Rounds 1–7.

#### 4.3 Educational premium due to higher level of parental schooling

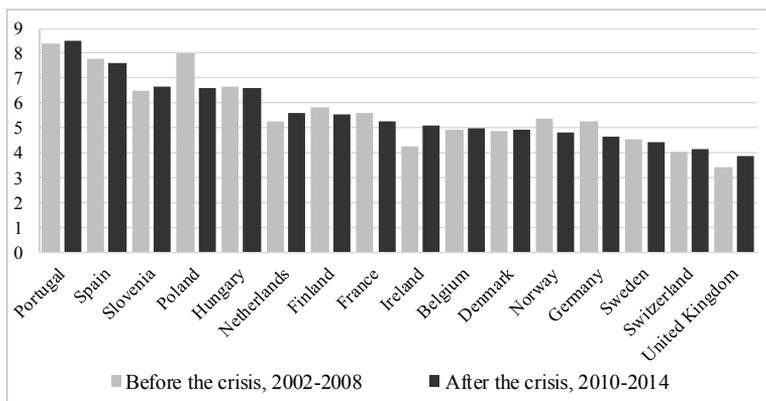
The third indicator of intergenerational educational mobility (educational premium) is based on the (higher) number of years of schooling completed by the respondent. Analysis of the educational premium consists of two steps.

1. The mean number of years of education is calculated at each level of parental education in all the countries examined. Not surprisingly, the higher the level of parental education, the more years of education are completed by the children. This greater number of years of schooling is the 'premium' that respondents 'gain' as a consequence of coming from a family where the parents are better educated.

2. Next the difference in the amount of the premium is calculated for the 16 countries and for the two phases, before and after the economic crisis. Countries are ranked according to their position after the crisis.

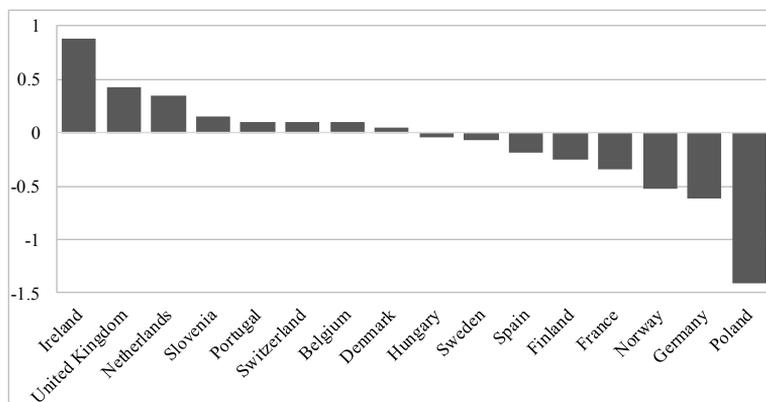
The maximum educational gain calculated in this way is 8–9 classes of schooling; the minimum is 3–4 classes. The premium is higher in the Southern European countries and the former socialist countries, and lower in the UK, Switzerland, Sweden and Germany.

Figure 6 *Educational premium as measured by the greater number of years of schooling of respondents compared to their higher- or lower-educated parents, before and after the crisis*



Note: Countries are ranked by the educational premium after the economic crisis; calculations are based on ESS Rounds 1–7.

Figure 7 *Change in the educational premium as measured by the greater number of years of schooling between respondents with higher or lower educated parents, between the periods 2002–08 and 2010–14*



Note: Countries are ranked from increase to decrease in the change in educational premium ('from bad to good'); calculations are based on ESS Rounds 1–7.

As *Figure 6* shows, there is not much temporal variation in educational gains, calculated for the period before and after the economic crisis. There are two exceptional country cases: Poland (positive) and Ireland (negative).<sup>7</sup> The difference in the ranking of the countries between the two periods is presented in *Figure 7* in more detail. In most of the countries, the difference is no greater than 0.5 years (plus or minus). The educational premium increases most in the two Anglo-Saxon countries and the Netherlands; meanwhile the advantage of coming from a parental family with better education decreased most in Poland, but also in Germany and Norway to some extent.

#### *4.4 Odds of obtaining a degree from higher education*

The last indicator of the analysis is a dichotomous measure indicating whether the offspring has a degree from tertiary education. Consequently, this section presents the results from a logistic regression procedure. The related statistical model includes three explanatory variables: 1. The principal component derived from the father's and mother's education assesses the effect of social background on the probability of obtaining a college degree. 2. The dummy variable separating the periods 2002–08 vs. 2010–14 refers to the increase or decrease in this probability. 3. The interaction term of these two variables reveals whether parental education increases or decreases the odds of the college degree in the period after the crisis, compared to the period before it.

Two kinds of statistical analysis are performed. First, the model is fitted to the data of all observations, when all respondents with a college degree get the value 1 and the others get the value 0 in the dependent variable. Second, the analysis refers only to those respondents who completed secondary education. Then, those with a college degree get the value 1, while those who did not continue on to university, but stopped at the secondary level of schooling, get the value 0 in the dependent variable. In this latter case, those respondents with education below secondary level are left out of the analysis; there are still about 100,000 cases remaining. This second approach takes account of Mare's (1981) idea on conditional probabilities: namely, when considering the odds of obtaining a tertiary degree, it is only appropriate to study those with secondary education, because only they meet the formal conditions for applying to enter tertiary education. This second approach contains a selection effect,

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<sup>7</sup> One should bear in mind that any decline in the educational premium is due to a weakening of the effect of parental background on the offspring's education, which is a positive development (i.e. the bar for Poland is shorter in the period after the economic crisis); in the case of Ireland, the bar is longer in the period after the crisis (a negative development).

because it filters out the structural element of the effect of social origin on whether or not a child completes secondary education. *Table 1* summarizes the results from both statistical analyses.

Table 1 *The probability of attaining a tertiary degree*

Explanatory variables	A. All respondents		B. Only with completed secondary school	
	Odds: Exp(B)		Odds: Exp(B)	
	Model 1	Model 2	Model 1	Model 2
Parental education	2.433***	2.399***	1.663***	1.610***
After the crisis = 1		1.222***		1.169***
Interaction term		1.029*		1.070***
Intercept	0.385***	0.353***	0.677***	0.632***
Nagelkerke R Square	0.198	0.200	0.074	0.077
Valid N		166,144		108,860

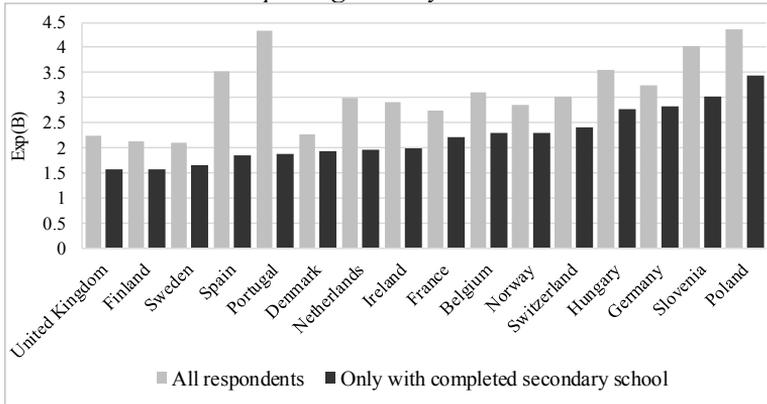
Note: Level of significance: \*\*\*p<0.001; \*\*p<0.01; \*p<0.05; calculations are based on ESS Rounds 1–7.

This analysis proves that parental education has a strong and significant impact on the probability of completing tertiary education. Nevertheless, this effect is smaller in analysis B, because part of the effect of parental background, related to completing secondary education, is already filtered out. Model 1, in both analysis A and analysis B, contains only the main effect of parental education, and this effect decreases only slightly in Model 2, when the further explanatory variables are added. The temporal (crisis) variable has a positive sign in both analyses; this means that the odds of obtaining a college degree increased over time. The interaction term is also positive; this means that the impact of parental education on the probability of completing tertiary education increased after the economic crisis. This effect is more marked in analysis B, when only the selected group of respondents is examined. Finally, the explanatory power of the statistical model (R Square value) is bigger in analysis A, when all respondents are investigated. This general picture, however, varies a lot when results from the logistic regression models are examined in the 16 countries.

*Figure 8* displays the influence of parental background on the probability of obtaining a degree from tertiary education. All regression estimates are statistically significant. Effect sizes are smaller in the case of respondents with secondary education, in particular in Spain and Portugal. It seems that parental education has an exceptionally strong impact on completing secondary education in the Southern European countries. Otherwise, these countries – as well as the UK, Finland and Sweden – are to be found in the lower part of the rank order, with a smaller effect of social background. The effect of parental

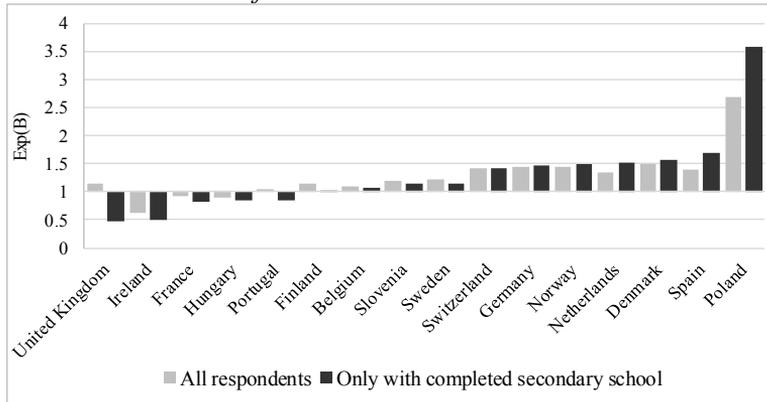
education is strong in Poland, Slovenia, Germany and Hungary. All these countries have a German-type schooling system.

Figure 8 *The effect of parental education on the odds of completing tertiary education*



Note: Countries are ranked by regression estimates for those with secondary level of schooling; calculations are based on ESS Rounds 1–7.

Figure 9 *Change in probability of completing tertiary education after the economic crisis<sup>8</sup>*



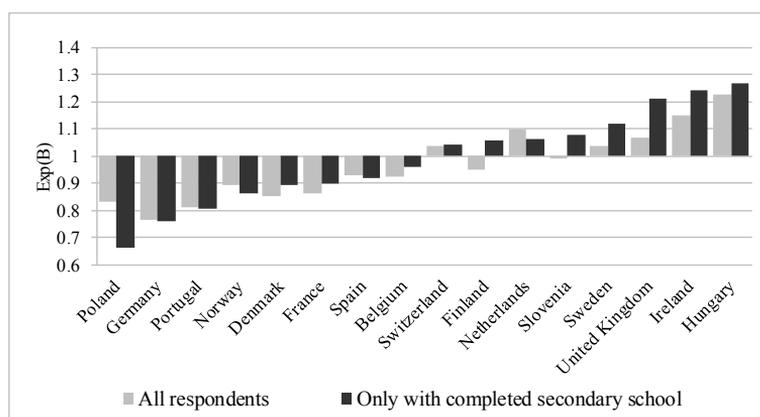
Note: Countries are ranked by regression estimates for those with secondary level of schooling; calculations are based on ESS Rounds 1–7.

<sup>8</sup> The Exp(B) values in *Figures 9 and 10* should be read as follows: if the value is greater than 1, the effect is positive (there is an increase over time); if the value is between 0 and 1, the effect is negative (there is a decline over time).

Figures 9 and 10 display the changes over time in more detail. In some countries, the chances of obtaining a college degree have decreased rather than increasing, and the effect of social origin also varies greatly by country.

As Figure 9 shows, the odds of obtaining a degree from tertiary education are significantly lower in the two Anglo-Saxon countries, France and Hungary. The odds are significantly higher in the majority of countries – in particular in Poland, where the increase is substantial in the light of both analyses. There is no statistically significant change in Portugal, Finland or Belgium in this respect.

Figure 10 *Change in the effect of parental education on the odds of completing tertiary education after the economic crisis*



Note: Countries are ranked by regression estimates for those with secondary level of schooling; calculations are based on ESS Rounds 1–7.

Figure 10 shows that the influence of parental education has decreased significantly since the economic crisis in about a third of the countries examined (Poland, Germany, Portugal, Norway, Denmark, France). This trend is particularly strong in Poland, even among those with secondary education (analysis B). The outcome may be a consequence of the fact that the probability of going on to tertiary education has generally increased in Poland. There are three countries where the effect of social background has increased: the two Anglo-Saxon countries and especially Hungary. The reason may be that the chances of gaining a college degree have declined in these countries. In the rest of the countries – in the middle of the rank order – the estimates presented in Figure

10 are statistically insignificant. That means that the effect of parental education has not changed over time in those countries.

## 5. Conclusion

The analysis has examined intergenerational mobility in the light of four indicators, using data from seven rounds of the European Social Survey in 16 countries, with the chief goal of uncovering differences between these societies, in a descriptive and exploratory way. The main research question refers to the rank order of these countries in terms of social openness, based on educational mobility (and to the position of Hungary in this ranking). A second research question deals with variation in educational mobility, comparing the period before and after the economic crisis (2002–08 vs. 2010–14). Was there an increase or decrease between the two periods according to the indicators developed for this study? Has there been any change in the rank order of the countries selected?

Producing such ‘league tables’ of countries is a typical technique, although the value of those rankings is sometimes overestimated. Without doubt, the procedure leads to ranking anyway, though in reality two countries with different rankings may be only slightly better or worse.<sup>9</sup> Examples of rankings in the literature seldom go into detail regarding the extent of any differences. Nevertheless, the statistical significance of the results has been discussed in this analysis, at least in the case of the last indicator. Furthermore, the study works with four indicators and presents four rank orders characterizing the same issue – educational mobility – because if they tend to correspond, findings may be more reliable (at least in terms of the two poles).

An important finding of the analysis is the *missing clustering* of countries that one might expect in terms of similarities and differences. Members of typical country groups – like the Scandinavian, the Anglo-Saxon, the Southern European – are not necessarily similar to one another when the mobility rates or correlations are considered. At most, the educational premium indicator mirrors the social-geographical composition of countries. Another important finding is that country rank orders are *more consistent at the bottom than at the top*. This holds true for Hungary, as well, even if the absolute mobility rates are not as low for educational mobility as for occupational (class) mobility. However, the strong correlation between the education of parents and their

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<sup>9</sup> Consider similar examples: if people are ranked by height, the difference may only be centimetres; the runner who is first to cross the finishing line may be just a fraction of a second faster than the second-placed athlete.

children reveals limited social openness; meanwhile the educational premium connected to the higher level of parental schooling is also substantial. The effect of social origin on obtaining a college degree is also strong in Hungary. These results for Hungary are plausible, given the country's equally weak position in the PISA rankings. The impact of family background on achievement at secondary school is similarly decisive.

Regarding the other research question, the analysis does not uncover any strong influence of the economic crisis on educational mobility chances. One explanation may be that the analysis *underestimates* this effect for several reasons. The measurement of the period effect was based on the date of the survey and not on the timing of the mobility event. Respondents over the age of 25 are examined because before that age threshold the education process is likely to be incomplete, and failure to obtain a college degree could be either a negative consequence of the crisis or simply the age effect (too young to enter tertiary education). Nevertheless, all four indicators display some evidence of the crisis, whether the data on educational mobility come from the period 2002–08 or 2010–14. In Hungary, there was no substantial change in terms of either the correlation between the education of the parent and the child or the educational premium; but upward mobility declined strongly and the effect of parental education on the completion of tertiary education increased after the economic crisis to a greater extent than in any of the other societies investigated. All in all, this analysis of intergenerational mobility, based on the 2002–14 data of the ESS, confirms previous assumptions that the school system in Hungary is selective and does not compensate for disadvantages resulting from social origin. Far from improving, the situation in this regard has even worsened in recent years.

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