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FACULTY OF EDUCATION
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Access to a degree in Europe

**Inequality in tertiary education
attainment 1950-2011**

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Summary

Inequality in access to, and attainment of, tertiary education, and particularly how it has been affected by a massive growth of student numbers in last decades, is one of major points of interest. Unfortunately, large international surveys focused directly on it are rather scarce. Yet it is possible to analyse the changing levels of inequity across European countries during past sixty years by using data gathered by surveys conducted on other themes, namely by European Social Surveys (ESS). This approach has been used in a study by the Education Policy Centre, Charles University in Prague (EPC). An article just put on the EPC web summarises its results, analysing basic patterns of the transmission of inequality, its changing levels and its relationship to the expansion of tertiary education.

The paper *Access to a degree in Europe: Inequality in tertiary education attainment 1950-2011* summarises the latest EPC study published in 2010, extending its time series to 2011. The EPC approach uses data gathered in five rounds of the European Social Survey (ESS 1-5), conducted in 2002/2003 to 2010/2011 in more than thirty European countries. Although the ESS is not primarily focused on education (but on value orientation and social structure), it contains data which can be used very well for analysing the relation between social structure and inequalities in tertiary education attainment. They include essential characteristics of the respondent's family background: education and occupation of his/her father and mother when he/she was fourteen years of age.

It has been thus possible to develop a model for defining and calculating the Inequality Index for 21 European countries. The overall size of the database – established by uniting the results of all five rounds and covering almost 200 thousand respondents – has allowed not only to analyse individual countries but also to distribute their respondents into age groups corresponding to six ten-year historical periods (the last one being longer by one year) from the 1950s to 2011.

Analyses carried out so far have made possible to answer three important questions relating to different facets of the problem:

What is the proportion of graduates coming from families with a higher socio-economic status and those coming from families with a lower socio-economic status?

What are the basic patterns of the transmission of inequalities between parents and children?

What is the level of inequalities in tertiary education attainment in European countries, and how it has changed during the last fifty years?

What is the relationship between the expansion of tertiary education and the level of inequality for its achievement, and how has their character changed?

Answering the first question, in the last sixty years, chances to get tertiary qualifications have considerably increased both overall and for all social groups, while the differences between groups even decreased in relative terms. Despite the fact that the chances of children from various social groups are far more balanced, the differences between them remain considerable even today. The chances of descendants from the quarter of the highest status

families are even today more than 4.2 times higher than those of their peers coming from the quarter of the lowest status families (for comparison, in the 1950 their chances were even about 8 times higher).

As for the second question, the analysis of the **development and impact of family background factors** has revealed two basic dimensions of inter-generation transmission of inequalities in tertiary education attainment. The first one relates to characteristics of the father and of the mother, the second one to characteristics of occupation and of education. The most significant trend in Europe in the last sixty years in most of countries is the shift from the predominance of the father's characteristics to the characteristics of education of both parents. The impact of the father's occupation has been constantly decreasing in Europe since the 1950s when it was at its peak. On the other hand the impact of the mother's occupation has been strengthening in the last sixty years but it is still the weakest factor of all, although not so markedly as before. Gradually, the prevalence of the father has been weakening and impacts of all four factors have been becoming much more similar. However, it is not possible to generalise this development, as individual countries differ a lot and each of them follows its specific pattern how to transmit inequalities.

As for the third question, the **overall level of inequality in tertiary education attainment** in Europe has been declining during the last six decades, although this trend is not particularly strong. Also this statement cannot be generalised, as it has been valid neither for all countries nor for all periods of time. The development and current level of inequalities in individual European countries differ a lot, yet it is possible to identify three relatively homogenous groups of countries having a similar development. As they correspond quite well to their geographical position and cultural/political situation (including a similar development of their education systems), they have been indicated as countries of North-Western, South-Western and Eastern Europe.

The decrease in the overall level of inequality can be largely attributed to **countries of South-Western Europe**. Historically, they have a predominantly catholic tradition with a steeper social hierarchy and more clearly stratified social groups and classes. The lowest levels of inequalities in tertiary education attainment in the entire post-war period, far below the European average, can be found in **countries of North-Western Europe**. They are, to a large degree, rooted in the protestant tradition with a less steep social hierarchy and smaller differences between the characteristics of social groups and strata. Although the level of inequalities in **South-Western European countries** has been considerably higher than in countries of **North-Western Europe**, the trends in the development of inequalities in tertiary education attainment have been, to a degree, similar in both groups. At first, inequalities gradually decreased in the period from the 1950s until the 1980s. During the 1990s there was a slight increase and, since 2000, inequalities have been decreasing again and have reached their original minimum levels.

The development in **Eastern European countries** was entirely the opposite in some periods. In accord with their historical development they reached the lowest level after political and social upheavals in the 1950s, coming close to this minimum again in the 1970s. They grew in the 1960s and, particularly, in the 1980s and 1990s when they reached their peak level. Since 2000 even Eastern Europe has witnessed a slight decline in inequalities. Although originally quite different, trends of the development in Western and Eastern Europe have tended to be quite similar after 1990. Nevertheless the average level of inequalities in the countries of

Eastern Europe continues to be higher than the average for both other groups of European countries.

Finally, the EPC have linked **changes in inequality to the three phases of the expansion** of tertiary education as categorised by Martin Trow (that is the elite, the mass, and the universal phase). The analyses have confirmed that expansion of tertiary education in European countries has led only to a limited lowering of inequalities, visible only in some countries and in some periods. While the influence of expansion was really quite marked in the first decades following the WWII, it has been steadily declining since. Although it cannot be considered as negligible, it is not possible to contend that quantitative expansion is automatically followed by a reduction of inequality in tertiary education attainment.

On the other hand, inequalities tend to change their character. As tertiary education has entered the mass and later even the universal phase, they have become more subtle and less discernible as they changed their focus from quantitative to qualitative characteristics. Today they affect predominantly the achievement of preferred fields of studies and to prestigious institutions, and after the graduation, also the position on the labour market. Hence it is important to provide a comprehensive analysis of multiple relationships between family background, access to, and attainment of, tertiary education, as well as the position of graduates on the labour market and their social status, that is to cover also the effects of tertiary education.

This is exactly what the EPC will focus on in their new extended study under preparation to be published in the first half of 2014. It will be possible to use not only data of the sixth ESS round, but particularly also data gathered by the OECD survey PIAAC (*Programme for the International Assessment of Adult Competencies*) just becoming available.

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Introduction

The interest in the complex relationship between the growth of tertiary education and the changing level of inequity can be observed since the sixties of the twentieth century. Yet as far as international comparisons and evaluations are concerned, only few systematic and more substantial efforts have been made during the last fifty years, as opportunities for analysing comparable data gathered in international databases have been rather limited.

Although large international surveys focused on inequalities in tertiary education attainment are rather an exception, it is possible to carry out comparative analyses based on data gathered from surveys focused on other themes of social studies. This approach has been employed in a series of studies carried out by the Education Policy Centre, Faculty of Education, Charles University in Prague (EPC), using data of the European Social Survey (ESS).

Analyses carried out so far have made possible to answer the following research questions:

What is the proportion of graduates coming from families with a higher socio-economic status and those coming from families with a lower socio-economic status?

What are the basic patterns of the transmission of inequalities between parents and children?

What is the level of inequalities in tertiary education attainment in European countries, and how has it changed during the last sixty years that is during the period of an unprecedented expansion of tertiary education?

What is the relationship between the expansion of tertiary education and the level of inequalities in tertiary education attainment?

This paper *Access to a degree in Europe: Inequality in tertiary education attainment 1950-2011* summarises and updates the results of the latest EPC study *Who gets a degree? Access to tertiary education in Europe 1950-2009* published in 2010 (and preceded by the study *Who is more equal? Access to tertiary education in Europe* published in 2009). The series will be continued, the next study to be published in 2014 will use not only the new ESS data but also data gathered by the *Programme for the International Assessment of Adult Competencies* (PIAAC).

The database and the model

The analysis of the development of inequalities in tertiary education attainment is based on the data gathered in the first five rounds of the *European Social Survey* (ESS 1-5), conducted in 2002/2003, 2004/2005, 2006/2007, 2008/2009 and 2010/2011 respectively in more than thirty European countries.

Although the ESS is not primarily focused on education (but on value orientation and social structure), it contains data which can be used very well for analysing inequalities in tertiary education attainment and their social conditioning. The level of inequality in tertiary education attainment depends on the extent to which the acquisition of tertiary education can be explained or predicted by means of so-called *ascriptive factors* – that is those that an individual cannot influence, that are determined from the “outside” or that are “inborn”. The most important ascriptive factors are the education and occupation of both parents which jointly characterise *the socio-economic background of an individual*. As ESS questionnaires ascertain the education and occupation of both parents, it has been possible to develop a model for defining and calculating the Inequality Index for all countries participating in the survey.

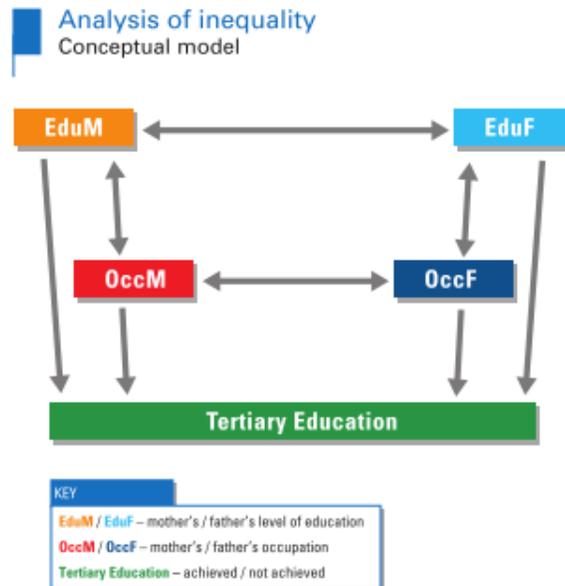
The overall data set – covering altogether as many as 186 191 respondents in 21 countries – has been established by uniting the results of all five rounds, including those countries that participated in at least three ESS rounds (one of them being the most recent fifth round 2010/2011). However, three countries (Cyprus, the Russian Federation and Ukraine) have not been included in the analysis because of problems with the classification of education attained by respondents. The overall size of the database has allowed to form six age cohorts – covering those who graduated in one of the following six periods: 1950-1960, 1960-1970, 1970-1980, 1980-1990, 1990-2000 and 2000-2011 – and thus to analyse the change of the Inequality Index in short ten-year (or eleven-year in the last case) periods.

The conceptual model used for the analysis of inequality in tertiary education attainment in Europe over the last decades can be described and interpreted as a model with one binary *explained variable* expressing whether or not the respondent has achieved tertiary education. The classification of tertiary education, elaborated by Silke Schneider specifically for ESS data, has been used. As *explaining variables* four family background indicators (i.e. ascriptive factors) were chosen from data offered by the ESS: the highest level of education achieved by the father; the highest level of education achieved by the mother; the occupation of the father and the occupation of the mother, both when the respondent was 14 years of age. The model was repeatedly used not only to analyse data for the whole Europe and for individual countries, but also to analyse the six designated age cohorts of respondents in all the twenty-one countries; altogether 132 analyses have been carried out in order to investigate all relationships existing within the model proposed.

As the explained variable *Tertiary Education* is binary (i.e. it assumes only two values), and the explaining variables are categorised (according to quartiles), the *logistic regression model* was chosen. The model generates values of parameters expressing odds ratios of tertiary education attainment for groups with different socio-economic background (that is between

the upper and the lower quartile). The final indicator – the *Inequality Index* – expresses the overall impact that the chosen characteristics of family background have on tertiary education attainment. It assumes values on a 0-100 scale; the perfect equality in the tertiary education attainment is represented by the value 0, the perfect inequality by the value 100. The Inequality Index has been constructed in the same way as a well-known and often used measure of inequality, the *Gini Inequality Index*, considered by many authoritative sources to be the best measure of inequality.

Figure 1:



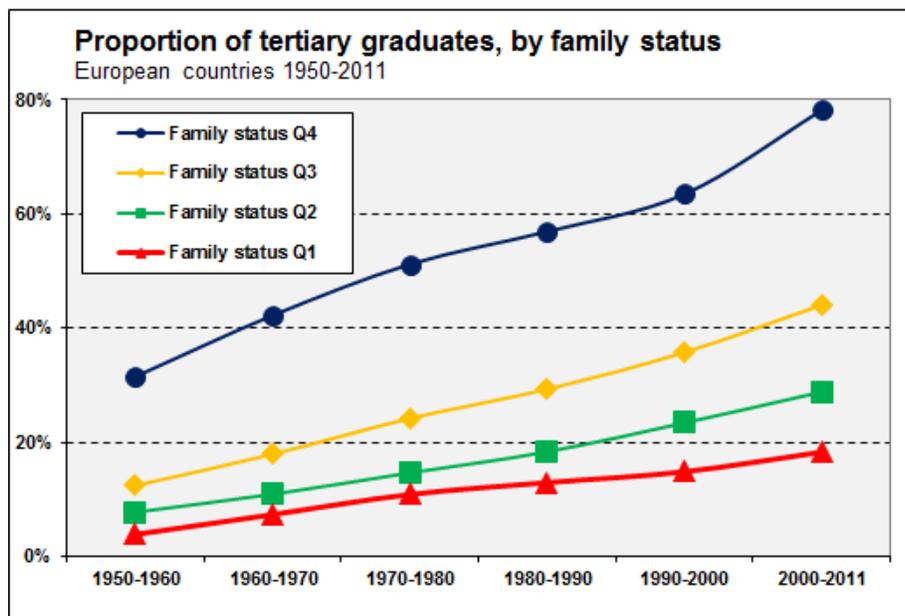
Please, note that "Europe" in the following text is a simplified designation for a weighted average of 21 European countries included in the analysis (Belgium, Bulgaria, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, the Netherlands, Norway, Poland, Portugal, the Slovak Republic, Slovenia, Spain, Sweden, Switzerland, the United Kingdom), the weight being the size of the population of the respective country.

Proportion of tertiary graduates by family status

An overall analysis can answer the question how varied are the chances of young people coming from different social strata in Europe to attain tertiary education. It is based on comprehensive characteristics of the social status of their parents consisting of four variables that include the father's and the mother's education and occupation. The set of all families examined in 21 European countries in each of the six historical periods was divided into four status groups of the same size according to quartiles (Q1 - the lowest social status, Q2 - lower social status, Q3 - higher social status, Q4 - the highest social status). Attention was paid to the development of the proportion of children who attained tertiary education – i.e. the development of chances of children from varying social and economic family backgrounds to achieve tertiary education was analysed.

In the last sixty years, chances to get tertiary qualifications have considerably increased both overall (from 14 % in the 1950s up to 41 % today) and for all social groups, while the differences between groups even decreased in relative terms. For example, the chances of the families with the highest social status (*Family status Q4* in Figure 2) have increased two and a half times but the chances of the families with the lowest social status (*Family status Q1* in Figure 2) have increased (from very low values initially) almost five times. The chances of children of the quarter of the lowest status families today are nearing 18 % but their disadvantage is by far smaller than it used to be. At European level it has not been confirmed that an increase in chances to get tertiary education for children from disadvantaged families is conditional upon satisfying demand of families with the highest status first.

Figure 2:



For the entire period of the last sixty years children coming from the quarter of European families with the highest level of social status (*Family status Q4* in Figure 2) have had

considerably higher chances to get tertiary qualifications as compared to children from other families. Although the ratio of their chances to those of other groups has been decreasing in relative terms, absolute differences continue to be large; at present their chances are about 78 %. Despite the fact that the chances of children in the other three social groups are far more balanced, the differences between them remain considerable even today. The chances of descendants from the quarter of the highest status families are even today more than 4.2 times higher than those of their peers coming from the quarter of the lowest status families (for comparison, in the 1950 their chances were even about 8 times higher).

Inequality in tertiary education attainment 1950 – 2011

The analysis of the development of the Inequality Index in European countries has revealed that the level of inequality in the tertiary education attainment in Europe has been gradually decreasing over the last six decades, although this trend is not particularly strong. The overall Inequality Index level (the weighted average of 21 European countries) has slightly decreased from 51 in the 1950s to the current 49. However, the analysis has also clearly shown that at European level the process of decreasing has not been an even one, the level of Inequality Index was decreasing mainly in the 1960s and 1970s (down to 50 and 48 respectively). In many European countries inequalities reached their minimum levels during the 1970s and 1980s, but in the 1990s they began to grow again. In some countries their levels even exceeded those achieved in the 1950s and 1960s and the Inequality Index for Europe rose from 48 to 50. The change in the 1990s can be explained by the overall development of society, in developed countries around the world rather strongly affected by neoliberalism. Its manifestations included, among other things, an increase in the level of wealth and of income inequality and other similar indicators. After 2000, the Inequality Index for Europe has decreased again to the current 49.

Neither the average European level of inequality in tertiary education attainment nor the long-term trends leading to its slightly decrease can be generalised for all countries and periods. It is necessary to deal with individual countries and periods specifically, as they differ a lot. It has turned out, for example, that the originally large spread of the Inequality Index (measured by standard deviation) between the countries began to diminish in the 1950s and kept on diminishing till the 1970s. However, the spread of Index values got larger again, although the differences in inequality between European countries have not reached the 1950s and 1960s levels.

In the decade immediately after the end of the WWII there were high levels of inequalities in tertiary education attainment particularly in Portugal and Spain. Bulgaria, Finland, France, Slovakia and Greece also showed a high level of inequality in the 1950s. However, from that time on inequalities in most of these countries have tended to decrease or fluctuate – although this was not true of all participating countries (e.g. Bulgaria and Slovakia) and all periods analysed.

For example, in the last two decades (1990-2011) the highest level of inequality in tertiary education attainment of all 21 analysed countries can be found in Bulgaria, Slovakia and also in Hungary, which is the only country where inequality in tertiary education attainment has been still growing (but for the stagnation in the 1970s). A major trend of growing inequalities can be observed in Estonia (1950s - 1980s), the United Kingdom (1950s – 1990s), Bulgaria and Slovakia (since 1960s to the present) and, for instance, also in Germany, Greece, Ukraine and Sweden (since the 1980s to the present). However, while in Bulgaria and Slovakia the level of inequality in tertiary education attainment was above-the-average as early as the 1950s (and in Hungary since the 1960s), Estonia, the United Kingdom, Ukraine and Sweden have never reached the European average and Germany has stepped over the European average as late as during the most recent decade (2000 – 2011).

On the other hand, a major and steady decrease in the level of inequalities in TE attainment occurred in Portugal, Finland, Spain and also in Greece (1950s – 1970s) and Slovenia (during the most recent decade). However, while Finland and Slovenia have shown the lowest inequality levels of all countries in the most recent decade (2000 – 2011), these values have remained at an above-the-average level in Spain and Portugal. Both influences – the starting level of inequality and the long-term development tendencies – intertwine and co-decide their present level. In the most recent period after 2000, the level of inequalities has been the lowest in Finland, Slovenia, Ireland and Denmark – i.e. countries where the Inequality index has either scored a major decrease or been low for the entire period.

Figure 3:

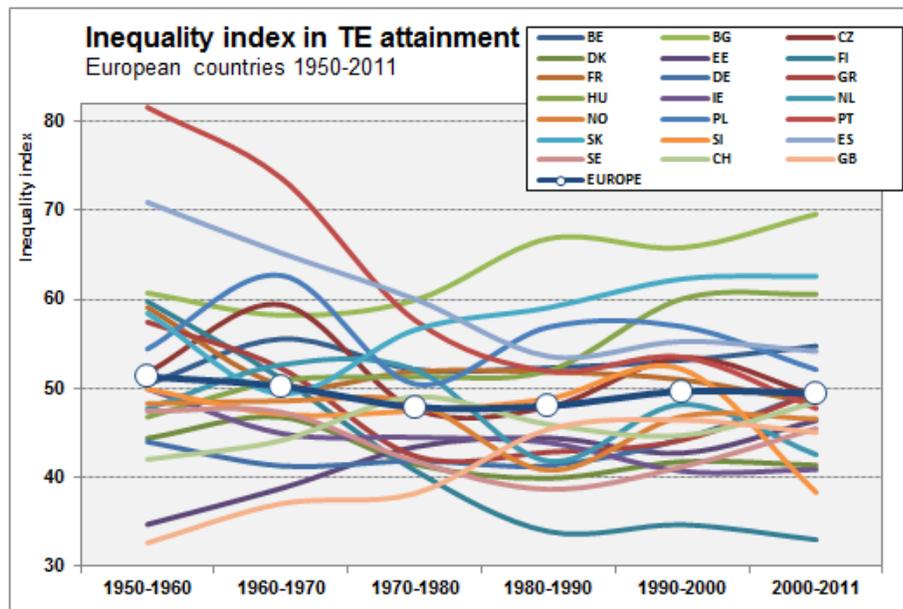


Figure 3 shows the overall situation in Europe as a tangle of development curves indicating individual countries. The analysis of the spread clearly confirms that the differences between countries are far from negligible – both in terms of the level and the development of inequalities in tertiary education attainment. Another objective of the analysis therefore has been to identify such groups of countries that are relatively similar in both aspects – i.e. in the overall level of inequality and in its development over the last six decades. However, the identification has its limits: on the one hand there cannot be too many such groups due to the problems of interpretation, on the other hand too large groups would blur the diversity of countries included in them.

The outcome of a thorough analysis of development trends and position of individual countries in all six time periods under review has led to the identification of three basic, *relatively homogenous*, groups of countries. Although the three groups do represent certain types, we must bear in mind that the specific position and development of individual countries tend to create a continuum where it is not possible to strictly define any clear-cut boundaries, and countries forming one group still remain *relatively heterogeneous*. In view of the fact that the breakdown of the countries into groups is, to a degree, related to their geographical position and cultural political situation, the three resulting types (groups of countries) have

been described as countries of **North-Western Europe**, countries of **South-Western Europe** and countries of **Eastern Europe**.

The identification of these groups of countries has resulted in defining three, relatively different trajectories of development that vary both in terms of their overall level and the dynamics of change. In terms of the spread of the level of inequalities for the three resulting groups of countries (measured by standard deviation) it is true that the differences in inequalities were the largest in the 1950s and have become the smallest in the most recent period after 2000. Differences in the level of inequality between the three groups of countries were decreasing from the 1950s to the 1970s, then slightly increased in the 1980s and then have begun to decrease again.

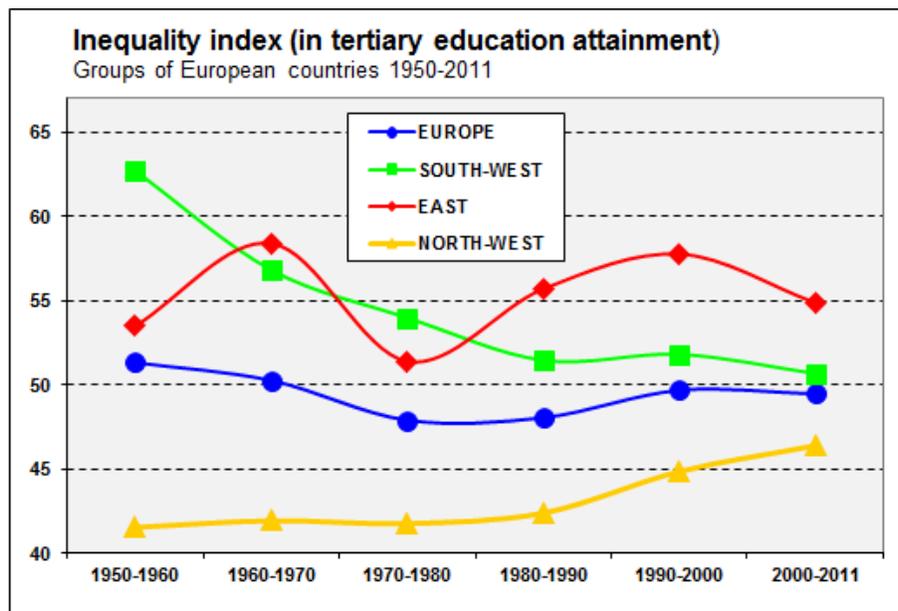
The three basic, relatively homogenous groups of European countries are composed as follows:

North-Western Europe (North-West): Denmark (DK), Finland (FI), Germany (DE), Ireland (IE), the Netherlands (NL), Norway (NO), Sweden (SE), the United Kingdom (GB);

South-Western Europe (South-West): Belgium (BE), France (FR), Greece (GR), Portugal (PT), Spain (ES), Switzerland (CH);

Eastern Europe (East): Bulgaria (BG), the Czech Republic (CZ), Estonia (EE), Hungary (HU), Poland (PL), the Slovak Republic (SK), Slovenia (SI).

Figure 4:



The decrease in the overall level of Inequality Index in tertiary education attainment in Europe can be largely attributed to the **countries of South-Western Europe**. Historically, they have a predominantly catholic tradition with a steeper social hierarchy and more clearly stratified social groups and classes. The original levels of inequality in tertiary education attainment in these countries were the highest of all (in the 1950s the Inequality Index was 63 on average, being by far the highest in Portugal and in Spain) but they began to show a steady decrease in the following decades and the Inequality Index gradually dropped to 51 in the

1980s. In the 1990s inequalities in South-Western Europe were increasing slightly again (52) and have reached the value of 51 in the most recent period after 2000.

Overall, the lowest levels of inequalities in tertiary education attainment in the entire post-war period can be found in **countries of North-Western Europe**. They are, to a large degree, rooted in the protestant tradition with a less steep social hierarchy and smaller differences between the characteristics of social groups and strata. Between 1950s and 1980s the average Inequality Index was stable at around 42 but it has increased to the current average value 46 in the last two decades. However, despite a certain increase in inequalities in the 1990s and after 2000 (the largest one occurred in Germany, Sweden and Norway) this group of countries is still far below the European average.

Countries of Eastern Europe experienced an entirely different and more fluctuating development in terms of inequalities. In the 1950s they showed approximately the average European level of Inequality Index in tertiary education attainment. In most Eastern European countries this was caused, above all, by post-war communist takeovers that were often accompanied by an extensive “regrouping” of social strata or “overturning” of social structure, a massive emigration of people from higher social classes and the introduction of “class” criteria in admission to tertiary education institutions. Understandably, this disrupted the processes of inter-generation transmission of education (see, for example, Bourdieu 1986). Despite this, inequalities in tertiary education attainment began to increase again as early as the 1960s and then, again, in the 1980s, as members of “new social elites” gradually restored and consolidated the continuity of inter-generation transmission¹. As a result, in the 1960s it was for the first time that the average Inequality Index in countries of Eastern Europe achieved the highest level of all three groups.

From the 1990s – i.e. immediately after the demise of socialism – Eastern European countries experienced further social changes. They resulted, among other things, in increasing overall social inequalities in many areas, for example, in the distribution of wealth and income. It is therefore not surprising that these changes also had an impact on inequalities in tertiary education attainment. This was particularly due the *social status crystallisation*² that manifested itself, apart from other things, in a severe strengthening of the link between education and income (which was very loose under socialism).

An increase in the overall *congruence* of social status where education began to play a major role had another important implication. In systems with a low proportion of adults with higher qualifications³ demand for tertiary education on the part of new young generations began to

¹ Among the studies analysing these processes we can mention the work of Hungarian authors Konrad and Szelenyi (1979).

² *Social status crystallisation* is a process where status characteristics (e.g. wealth, income, power, authority, influence, prestige, education, etc.), which were originally only very loosely connected, begin to strengthen their mutual links and correlate together.

³ One of major characteristics of socialism was low demand for education. In view of the weak dynamics of the economic development, slow introduction of new technologies and focus on traditional manufacturing sectors with low skills intensity, demand on the part of employers was limited. Demand on the part of individuals was also low due to low returns on investment in education and its social prestige. Higher levels of educational attainment were seen more as a cultural value that, however, was not widely shared in society.

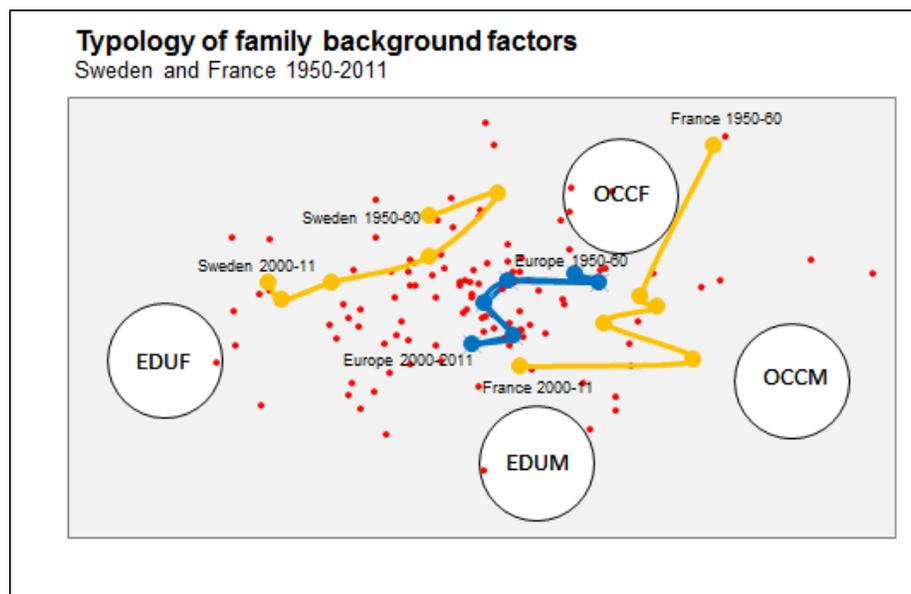
grow dramatically (in some Eastern European countries they represented large demographic groups). It took higher education policy several years to respond to this development. The pressures to achieve tertiary education first appeared, naturally, in families with a tradition of higher education. Moreover, due to the necessary selection as part of a supply-oriented system, successful candidates were mainly those with a more favourable (supportive) family background and a higher level of economic, social and cultural capital (see, for example, Shavit, Arum and Gamoran 2007). After 2000 that inequalities have begun to decrease in Eastern European countries. Nevertheless the average level of Inequality Index in the countries of Eastern Europe continues to be higher than the average for both other groups of European countries.

The profiles of family background factors

In addition to the overall influence of family background on inequalities in tertiary education attainment of children from various social strata, it is natural that each of the four factors of family background (so-called ascriptive factors) has a different impact on the overall level of inequality. Another objective therefore was to analyse the scale of impact of various family background factors both for the European population as a whole and for various countries and periods. The analyses have shown again that there are marked differences between various countries and periods.

The analysis of the development and impact of family background factors has revealed two basic dimensions of the inter-generation transmission of inequalities in the tertiary education attainment. The first one relates to characteristics of the father and of the mother, the second one to characteristics of occupation and of education. The analysis therefore makes it possible to display the position of various countries in various periods in an area delimited by the four family background factors that play the role of poles or magnets to which the given country is pulled to a varying degree in the given period (see Figure 5).

Figure 5:



The most significant trend in Europe in the typology of family background factors affecting the tertiary education attainment in the last sixty years is the shift from the predominance of the father's characteristics (in most of countries) to the characteristics of the education of both parents. The impact of the father's occupation in Europe has been constantly decreasing since the 1950s when it was at its peak. On the other hand the impact of the mother's occupation has strengthened in the last sixty years but it is still the weakest factor of all, although not so markedly as before. Gradually, the prevalence of the father has weakened and impacts of all four factors have become much more similar. However, it is not possible to generalise this

development, as individual countries differ a lot and each of them follows its specific pattern how to transmit inequalities.

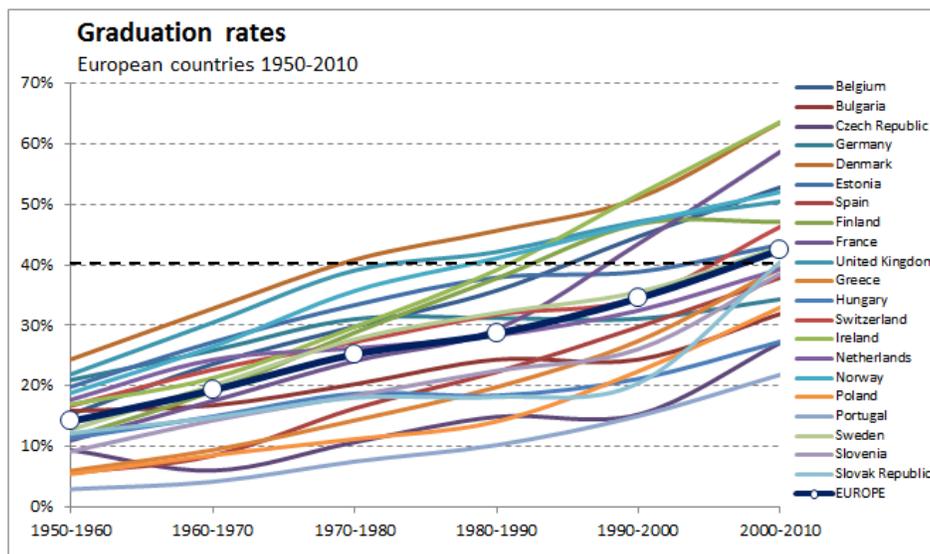
For example, Sweden is among those countries where, over the last sixty years, the weight of various family background factors has tilted rather significantly towards the father's characteristics. Conversely, France shows a significant shift from the father's occupation towards the education of both parents that has played a major role in the inter-generation transmission of the tertiary education attainment in recent periods.

Expansion of tertiary education and inequality in tertiary education attainment

The development of tertiary education during the last sixty years shows that its expansion is inevitably interlinked with its diversification. Both processes are interdependent, caused by the same reasons. Economic reasons and demand on the labour market – when the graduation rate is growing – require more types and levels of education and training, including short and largely professionally and practically oriented programmes. Social reasons and widening of access result in a far higher heterogeneity of students and thus in a greater diversity of their aptitudes, interests, motivations and goals. Hence quantitative expansion is accompanied with structural transformation and as new types of institutions and study programmes impact on other characteristics of tertiary education, also qualitative transformation is under way.

This fundamental threefold transformation proceeds in more stages than one. It was as early as the 1970s that Martin Trow defined at the OECD three basic phases of tertiary education (and thus three types of tertiary education systems) as *elite*, *mass* and *universal* according to the proportion of the relevant age group admitted to studies, that is to the entry rate (Trow 1974). The increased intake naturally results in a gradual increase in the number of graduates a few years later. However, the relationship between these two indicators is not a clear-cut and straightforward one, as it is influenced by a number of other factors. They include the nature of transition between various sectors or institutions of tertiary education, the completion rate (it ranges between 60-90% in European countries), accumulation of degree-level diplomas, interruption and resumption of studies, etc.

Figure 6:



The European Social Survey data and subsequent analyses make possible to reconstruct a probable development of the graduation rate in European countries during the last sixty years. This approach requires, however, that quantitative limits of the three phases of tertiary

education are redefined in terms of the graduate rate, instead of the entry rate⁴. An analysis of the proportion of tertiary education graduates in the relevant age cohort in European countries over the past period of sixty years points to marked differences between countries. At the same time it documents both a dynamic increase in the graduation rate and the whole transition process between the three phases

The analysis of the influence of the expansion of tertiary education on inequality in the tertiary education attainment covers all 21 countries in all six periods under examination. Figure 7 lists the countries in various periods according to the proportion of tertiary education graduates in the relevant population cohort (i.e. according to the level of quantitative development of tertiary education). Moreover, the relevant level of Inequality Index is presented for each country.

Generally, the data confirm that tertiary education systems of individual countries gradually move from the elite type via the mass type to the universal type. First countries that have undergone this process were Denmark, United Kingdom, Norway, Ireland, Finland, France and Belgium. In the most recent period under review all 21 countries examined have already passed to the mass or to the universal type. At the same time it is clear that some countries traditionally have a lower proportion of tertiary education graduates. These include most Central and Eastern European countries (the Czech Republic, Hungary, Bulgaria and Poland), and also countries with a long and strong tradition of vocational education and training on upper secondary (ISCED 3) or postsecondary (ISCED 4) but no tertiary levels (Germany) and also Portugal.

However, the data about the overall quantitative expansion of tertiary education do not provide any information as to the actual openness of tertiary education to various social strata and groups. Analysing the relationship between the graduation rate and the Inequality Index can, of course, shed more light on the degree to which quantitative expansion affects the equitable tertiary education attainment, and how their relationship changes in time.

It was assumed – particularly at the initial stages of the quantitative expansion of tertiary systems – that expanding the tertiary education attainment would go hand in hand with decreasing inequality. The assumption was that the severe selection in admission to tertiary education in elite systems was to blame for the fact that, due to a number of economic, social and cultural reasons, children from socially disadvantaged backgrounds either did not apply at all, or they were less successful in the stiff competition during the admission proceedings.

It was therefore assumed that an increase in the proportion of tertiary education students in the population and elimination or at least alleviation of selection in admission to tertiary education institutions would automatically lead to a decrease in inequality among various social groups. Moreover, over the previous decades many countries took a number of major steps in order to implement the principles of fairer provision of educational opportunities and more equal tertiary education attainment. Higher education in many countries underwent structural diversification that gradually transformed it into systems of tertiary education, and far-reaching qualitative and curricular reforms jointly contributed to a major expansion of tertiary education attainment.

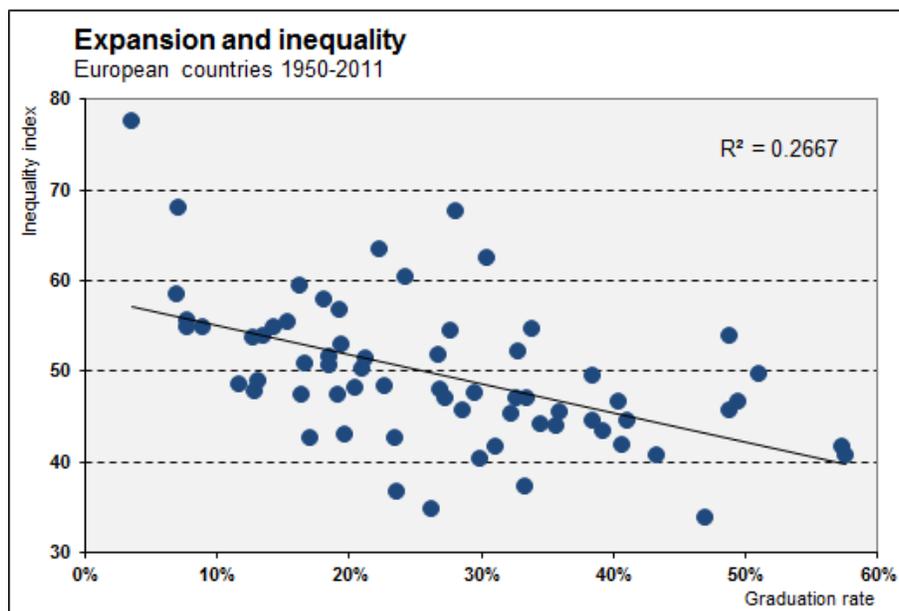
⁴ If the completion rate is about 80%, the transition from the elite to the mass phase can be characterised by a 20% proportion of graduates, and the proportion of 40% of graduates in the relevant age group can be assigned to the transition from the mass to the universal phase.

tertiary education has already reached the mass, or more likely, the universal phase, and when also inequalities in the attainment of this education level have been transformed.

In quantitatively large and, at the same time, highly differentiated systems access to tertiary education as such ceases to be important. What becomes important instead is what institution, level of education, type of study programme or field of study one attends, whether one completes his/her studies, what actual results he/she achieves and what capacities he/she builds during studies to enter the labour market. Inequalities therefore appear in less obvious contexts, they become subtler and more difficult to identify.

The relationship between the level of quantitative development of tertiary education (and its classification according to the Martin Trow's typology) and the level of inequality in tertiary education attainment can be analysed by using the data on the proportion of graduates in the relevant age cohort (the graduation rate) and on the scope of inequalities in tertiary education attainment in each of the six periods and in all 21 countries examined. Based on this it is possible to provide at least a partial answer to the question of whether and to what extent the expansion of tertiary education in European countries has contributed to a decrease in inequality in tertiary education attainment.

Figure 8:



The results of the analysis (see Figure 8) confirm that there really is a certain relationship between the graduation rate and the Inequality Index in tertiary education attainment in Europe, as the quantitative expansion accounts for about one fourth of all factors that cause a decrease in the Inequality Index level (Determination Index $R^2 = 0.267$)⁶. While in elite

⁶ The Determination Index informs what percentage of the variance of the explained variable is explained by the regression model and what percentage remains not explained. Its value is in the interval from zero to one, values close to zero correspond to poor quality of the model and values close to one correspond to high quality of the model.

tertiary education the average level of the Inequality Index is 54, in mass systems it is 48 and in universal systems it is as low as 45.

The development of the relationship between expansion and inequality shows specific features in each historical period and it is therefore important to deal with the individual periods in more detail. The relationship between both indicators is closer in each period when analysed separately than when all periods are taken together; the level of quantitative expansion explains more than a fourth of the value of the Inequality Index. A thorough analysis of this relationship was carried out both from the point-of-view of differences between countries in individual historical periods, and from the point-of-view of development of individual countries in the six periods analysed.

The relationship between the quantitative expansion of tertiary education and the Inequality Index was clearly the strongest in the 1950s and 1960s, as the proportion of new graduates in the relevant population explained nearly two thirds of the differences in Inequality Index levels among countries (the Determination Index $R^2 = 0,643$). However, as early as the 1970s and 1980s this relationship became somewhat weaker ($R^2 = 0,371$). The most recent development shows that the weakening trend has continued in the 1990s and after 2000, as only (but still) one third of the differences in inequality among countries can be attributed to the quantitative expansion of tertiary education ($R^2 = 0,322$). This means that it was mainly the first decades following WWII that saw a relatively strong relationship between the two trends. Later on it tended to weaken, although it is definitely not entirely negligible even nowadays.

On the other hand, the relationship between both indicators is not so much close, and at the same time the dispersion of the level of quantitative expansion of tertiary education and of the values of the Inequality Index is quite large. Therefore, it is not possible to postulate that quantitative expansion by itself decreases the differences in the attainment -of tertiary education by children of various social strata and groups and thus also the Inequality Index, though it contributes to this effect; although opportunities for all groups have increased, mutual relationship of their levels has not changed too much.

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