Equity in Education: A typology of European Educational Systems[1]

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Summary

Based upon the common framework of indicators introduced by Meuret a multi-dimensional typology of educational systems in Europe, regarding their level of equity, has been developed. The typology is built on a four dimensional space related to four main topics summarised by the following questions: - How important are the inequalities within each education system? - What are the benefits linked to education in the various countries? - In which extent do the different educational systems have got a developing role or a reducing role of the background inequalities? - In which extent do the educational inequalities benefit to the disadvantaged and favour the social mobility? Mapping the results allow to show on the same document the occupied position of each education system in the typologies and the relative position of each education system according to its neighbours. This exercise illustrates how difficult it is to answer the simple question "which education system is the most or the less equitable?". On the opposite, it shows how it is interesting to take into account the different dimensions in order to re-think policies not in simple terms, but in terms of complex interactions and systems. It shows also, based on data and not only on a priori, different models of educational systems, like the Nordic one or the central European one, regarding the central topic of equity.

1. Introduction

Based upon the common framework of indicators introduced by Meuret (2001, 2005) and developed during a three-year project, the GERESE (in press)[5] has developed a multi-

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dimensional typology of educational systems in Europe, regarding their level of equity (Demeuse, 2004; Nicaise, Straeten, Baye & Demeuse, 2005). The central idea is, like Demeuse, Crahay & Monseur (2001, 2005), to offer a comprehensive way to analyse and compare national educational systems with a common base in spite of the large number of differences among them (degree of centralisation, free market vs. public system…). This kind of "exercise" is not academic: it takes place in a large debate on education in Europe (Demeuse & Baye, 2005). In fact, till now, education - and mainly compulsory education-, is a matter devoted to countries but, more and more, international institutions, like the European Union, are involved in the field and common objectives are defined for the 25 national educational systems in terms of efficacy and equity (Demeuse, Baye, Straeten, Nicaise & Matoul, 2005).

The typology suggested by the GERESE is built on a four dimensional space related to four main topics summarised by the following questions:

- How important are the inequalities within each education system? (1)
- What are the benefits linked to education in the various countries? (2)
- In which extent do the different educational systems have got a developing role or a reducing role of the background inequalities? (3)
- In which extent do the educational inequalities benefit to the disadvantaged and favour the social mobility? (4)

Each dimension is related to numerous indicators in order to cover the field. According to the framework, the importance of inequalities within each system (1) is measured by nine different indicators built on PISA 2000/OECD survey as well as TIMSS 95 or international statistics on educational attainment for the adult population. The benefits linked to education (2) are estimated through 16 indicators like tertiary education return for male and female, employment probability, professional status, reading level, continuing training, cultural practices of children… For the third dimension – the role of educational systems in the reduction of the background inequalities (3) – data from different surveys were re-analysed to provide information like class size or teacher support according to gender, abilities, social or national origin. The last dimension (compensatory effort in favour of disadvantaged students or social mobility) (4) is based on the analysis of social transfers, social mix, solidarity values and practices.

The purpose of the study is not to produce a "League Table" but to offer a clear picture of the different educational systems in Europe in order to open the discussion among policymakers[6] as well as citizens. The adopted solution, after a large discussion with national representatives, is to draw maps in order to show on the same document the occupied position of each country in our typologies and the relative position of each country according to its neighbours. The results show the complexity of the concept of equity and the necessity to

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[6] The results of the study has been presented to the Council of the European Union (Education, Youth and Culture) (Brussels, 21 February 2005) by Marc Demeuse.

consider a multi-dimensional approach. The exercise shows how difficult it is to answer the simple question "which country is the most or the less equitable?". On the opposite, it shows how it is interesting to take into account the different dimensions in order to re-think policies not in simple terms, but in terms of complex interactions and systems. It shows also, based on data and not only on *a priori*, different models of educational systems, like the Nordic one or the central European one, regarding the central topic of equity.

The purpose of the paper is to introduce shortly the methodology adopted from the data collection according to a common framework to the mapping of the results as well as to offer an opportunity to discuss the findings. The data used in order to answer each of the four questions in the four chapters (2.1. to 2.4) are presented in an appendix. Seven tables are reproduced there and provide all the figures. The data are well described in the report of the GERESE (in press)[7].

For each question at least a map is offered as a synthesis. The way to produce each map is introduced for each chapter but generally the solution adopted is relatively simple: each country is ranked for each dimension and a colour is attributed according to its relative position between the first and the last one (black to the four least positions; medium grey for the four best positions; soft grey for the positions in between). The maps have been prepared for the European Commission and only the 25 States who are members of the European Union are drawn on the map. Unfortunately data were not completely available for the ten new members who join the European Union on May 1st, 2004. They are on the map but in grey. Switzerland, Norway and Iceland who are not members of European Union are in white.

2.1. How important are the inequalities within each education system?

Cognitive skills are measured via analyses relating to the results of the OECD's Programme for International Student Assessment (PISA) and the school careers via the qualifications obtained (Labour Force Survey), and the schooling expectancies. Twelve indicators were constructed with those data: 3 of them are measuring the differences between individuals, 4 the differences between groups, and 5 the characteristics of students below a threshold of skills, according to our conceptual framework. The twelve indicators are (see Appendix 1):

(1) The mean standard deviation of the distribution of results in mathematics, science and reading.
(2) The proportion of 25-34 year-olds who are not in the most common qualifications category for their age group in %.
(3) The difference of schooling expectancy for the 10% who have the shortest and the 10% who have the longest school careers.
(4) The mean deviation (mathematics, science, reading) between the average scores of students whose parental socio-economic index is below the 75th percentile and those for whom the same index is below the 25th percentile (expressed as a percentage of the mean standard deviation).

[7] The report offers 29 indicators. A first version of the report has been published on the official website of the European Commission (http://europa.eu.int/comm/education/programmes/socrates/observation/equality_en.pdf).

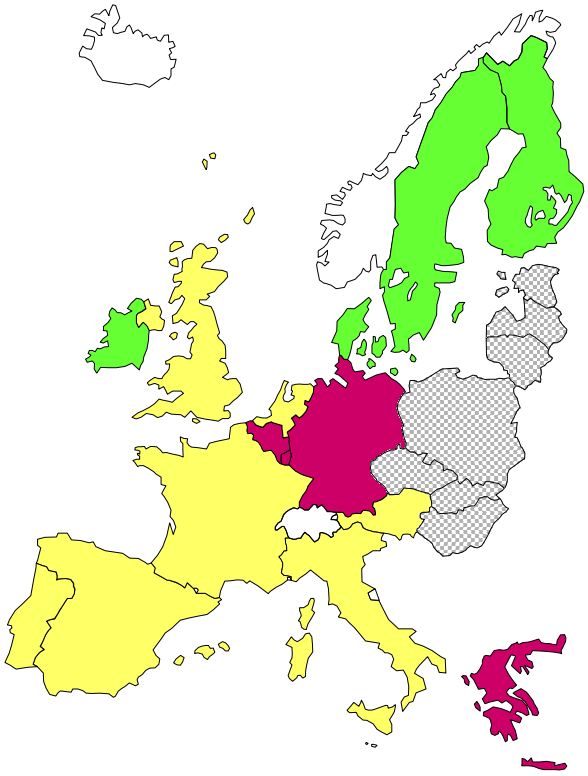
(5) The mean deviation (mathematics, science, reading) between the average score of students were born in the country of the test and those whose father and/or mother were born abroad (expressed as a percentage of the mean standard deviation)[8].
(6) The mean deviation (mathematics, science, and reading) between the average score of girls and that of boys (expressed as a percentage of the mean standard deviation).
(7) The inequality of schooling expectancies according to the gender.
(8) The percentage of students under level 2 on the PISA 2000 reading scale.
(9) The schooling expectancies for the 10% who have the shortest school career.
(10) The average *Sen index* (mathematics, science, and reading) for students with low scores. The *Sen index* is calculated according to the formula: T (I+G(1-I), where T is the percentage of pupils below a threshold Z (below the 15th percentile of international distribution); I corresponds to the value of the threshold [I=(Z-u/Z)]; and G, the *Gini index*, a measurement of the dispersion of the results among students below the threshold (Morlaix, 2005).
(11) The mean deviation (mathematics, science, reading) between students "with very low scores" and other students. Students "with very low scores" are those whose result is below the 1st decile of the national distribution for mathematics and science. For reading, the threshold is defined by literacy level 2 and below. It corresponds to 60 % of the median score in written comprehension of pupils from the various European countries. The European threshold is 306.43.
(12) The percentage of individuals 25-34 years of age who do not have qualifications from higher secondary education.

Figure 1 summarises the results obtained so far. It is based, indicator-by-indicator (see Appendix 1 for the data), on the *ranking* of the country, from the fairest (first position) to the least fair (last position) and on the average[9] of the rankings obtained by each of the countries examined for each of the domains as well as the overall average. Therefore, it "summarises" the tendency towards overall (un)fairness (inequality of results, access to basic skills, and treatment/opportunities) and allows an international ranking.

On that basis, it is Finland, Sweden, Ireland and Denmark which appear to be the fairest overall. On the other hand, the most unfair countries are Germany, Luxembourg, Belgium and Greece. Of course, these results should be treated with all the usual reserves. They are based on estimates that do not use inferential calculation for the most part (no test of hypotheses). The use of rankings means that we lose the intensity of the deviations between the systems. In addition, the correlation coefficients between the ranking of the country based on the standard deviation of the results (unfairness of the results) and the ranking of the country in comparison with other measurements of unfairness is sometimes low. This suggests that the countries may appear relatively unfair in relation to one dimension and relatively fair for another, which the calculation of an average ranking – which is the basis of the ranking in Annex 1 – tends to overcome.

[8] This index is not really related to the parents' nationality as reported in the Appendix 1 in order to be short in the table (Monseur & Demeuse, 2004) but to the fact (for the student and for the parents) to be born in the country where the test is organised.
[9] We do not put forward any "preference" for one of the three conceptions of fairness measured here, and have allocated the same weight to each of them.

Figure 1 – *Importance of inequalities of results (cognitive skills and school careers and expectancies).*



2.2. What are the benefits linked to education in the various countries?

Some of the benefits of education can be directly converted into financial terms – higher salary, lower risk of being unemployed – while others have a "non-market" value: cultural or civic benefits, as well as belonging to a higher social category, a more prestigious job, involving less risk of accidents, better health, the opportunity to give a better education to one's own children, etc.

The indicators used here (a summary presentation of which is provided in the Appendix 2) take into account several dimensions:

1. Economic advantages

(1) Private return from a tertiary education (ISCED 5 or 6)[10]
(2) Private return from an additional year of education, with a given level of professional experience[11]
(3) Increased salary associated with a tertiary education
(4) Increased probability of finding gainful employment

2. Social advantages

(5) Reduction of the risk of unemployment
(6) Effect on professional status
(7) Thorough grasp of written comprehension as an adult (reading level)

[10] This indicator was borrowed from *Education at a Glance*, 2002, p. 147.
[11] This is the only criterion which does not compare populations with a tertiary degree to other populations.

(8) Probability of attending continuing training

3. Advantages in relationships with children

The benefits accrued not directly by the person, but by his/her children or in the context of relationships with children were also taken into account. This is an aspect of the benefits of education whose importance was shown by Wolfe and Haveman (2000):

(9) Cultural practices of children;
(10) Quality of communication between parents and children;
(11) Educational skills of children.

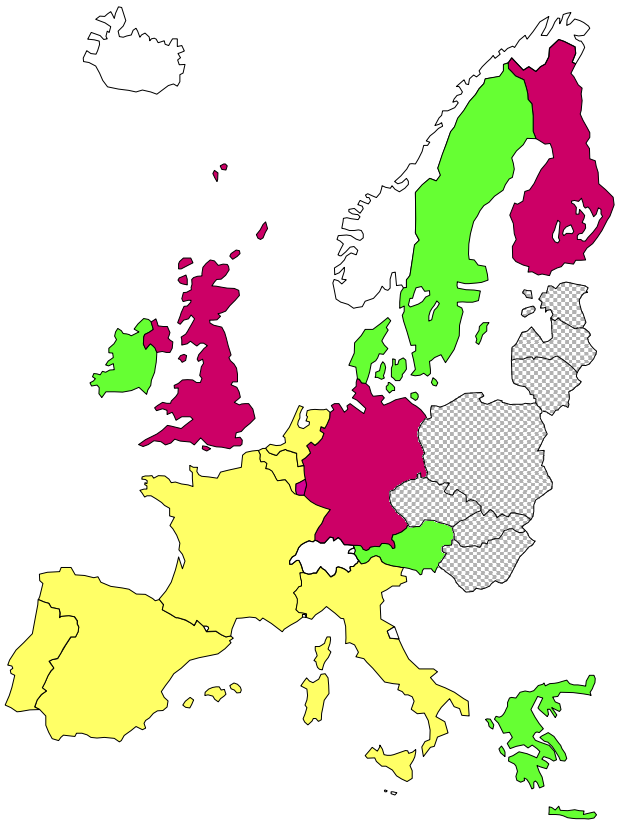
All the indicators were devised so that a high value means that an increase in education is associated with a particularly high increase in a desirable asset. A score was attributed to each country for each column: a 3 if the countries concerned differ from the others due to particularly pronounced values, a 1 for the low values of the indicator, and a 2 for an intermediary position. None score was given if no data were available for a particular country on a particular indicator. To rank the countries, the scores for each country were summed, and the sum divided by the number of indicator for which data were available. This method of working was preferred to the total of rankings because the extent and form of the distribution vary according to each criterion. To colour the synthetic map (Figure 2), the 4 weakest and the 4 strongest countries in terms of advantages of education receive a specific colour, medium grey and black, respectively. Other countries in between are in soft grey.

The map shows United Kingdom, Finland, Germany and Luxembourg (in black) as the countries where education has the biggest impact on adult life and, on the opposite, Sweden, Greece, Ireland and Austria (in medium grey). Unfortunately, this second dimension of the model is the weakest one: 5 indicators on 11 have 9 or less countries with available data. The question is nevertheless important: if education has a strong impact on adult life, equity in education is a priority. On the opposite, if education has no impact on adult life, equity in education is less relevant in the debate on equity. Other dimensions could be important in order to complete the set of indicators related to the impact of education on adult life. Unfortunately, no international comparisons for such interesting data, as, for example, the links between qualifications and the individual's perceived state of health, were found during the study.

Other lessons can also be learned from this analysis. Some countries have a homogenous profile: their relative situation does not appear to be different from one criterion to another. That is the case of Sweden which belongs to the countries where the benefits associated with education are least pronounced on almost all the criteria. On the other hand, Finland belongs to the countries where the benefits associated with education are the strongest on almost all the criteria. Others have a contrasting profile: Italy, Portugal, and the United Kingdom in particular. The United Kingdom combines particularly high monetary benefits of education with particularly low benefits in prestige and status of the profession entered, as it also had less pronounced benefits in terms of social mobility than Spain and Italy. On the other hand, in Germany, the benefits associated with education seem to be higher in terms of prestige than in monetary terms[12].

[12] These results should be treated with caution; they may reflect the fact that the indicators are calculated over different periods: the research used to score prestige is rather old, and it is not impossible that in Germany and in the United Kingdom, differences in prestige have since become aligned with the differences in pay.

Figure 2 – *Social advantages of education.*



2.3. In which extent do the different educational systems have a developing role or a reducing role of the background inequalities?

School is not an island: it depends on the social and economic system in which it exists, but in return, it can also modify it by contributing to a greater or lesser extent to reduce inequalities that are considered unfair. To understand the relations between school and its context it is of course important to draw a picture of the context. Figure 3 shows a synthesis of the contextual indicators developed by the GERESE in his report (Appendix 3a & 3b).Two sets of indicators are used to draw the map. The first set of indicators labelled "social, economic and cultural context in which European educational systems operate" (Appendix 3a) is computed on macro variables (Luxembourg Income Study[13], for (1) & (2), Labour Force Survey 2000, Eurostat, for (3), Education at a Glance, OECD, for (4), PISA 2000, for (5) to (7)):

(1) The proportion of children living in households living below the poverty line.
(2) The dispersion of household resources.
(3) The unemployment rate.
(4) The proportion of adults who have a low level of education (adults without a certificate of higher secondary education).
(5) The dispersion of cultural resources.
(6) The dispersion of cultural practices.
(7) The dispersion of professional aspirations.

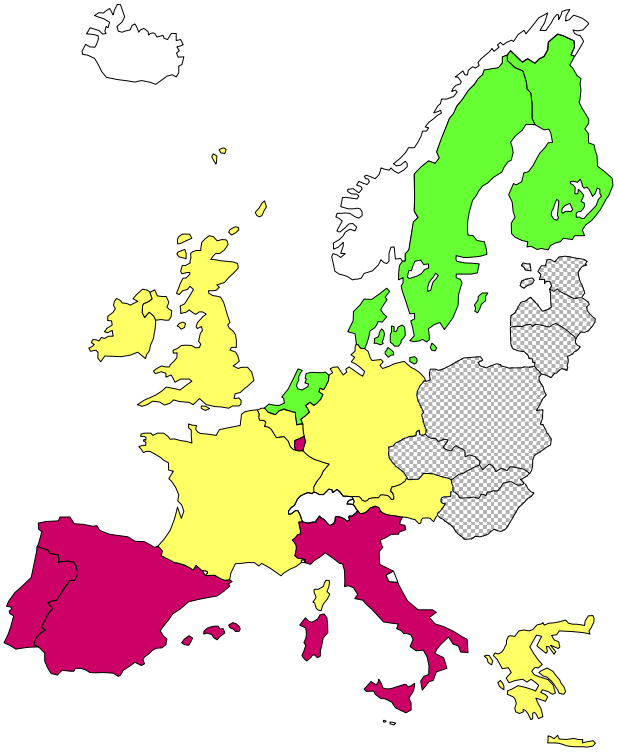
[13] http://www.lisproject.org.

The second set of indicators labelled "Social, economic and cultural inequalities, depending on individual variables" is computed for the same domains (family wealth, unemployment rate, level of education, cultural resources, cultural practices and professional aspirations), but another variable is introduced in order to understand the relation of each domain and, for example, the social origin, the gender, the national origin or the level of proficiency in reading (Appendix 3b).

From this information, it is possible to conclude that the economic, social and cultural context in which the Spanish, Italian, Portuguese and Luxembourger education systems seems to be harsher than in the other countries, while it is more favourable in Denmark, Sweden, Finland and the Netherlands.

Moreover, the indicators set out above can also provide information about the disparities between categories of individuals concerning social, economic, and cultural welfare. Concerning the social origin and reading performance, the most disadvantaged categories are, respectively, persons of modest social origins, and the pupils with the poorest performance. According to the data (Appendix 3b), France, Italy, and Luxembourg are the countries where the disparities between individuals, according to their social or national origin or their gender, are more pronounced than in other countries, whereas they are less pronounced in Sweden, Greece, Ireland, the Netherlands, and Finland.

Figure 3 – *Inequalities of context.*



To answer the question of the role of educational systems in the reduction or the amplification of social inequalities it is also important to study the school processes. The indicators relative

to the process, which have been integrated into the framework, also aim to highlight the effects of segregation, but also the differences in learning conditions (perception of support provided by teachers, perception of the climate in the classroom) (Appendix 4a for "Inequalities in the education process" and Appendix 4B for "Inequalities in the education, depending on individual variables").

The effects of segregated schooling were measured from data drawn from two international studies: the *Third international maths and science study* (TIMSS) by the IEA (1995) and the *Programme for International Student Assessment* (PISA) by the OECD (2002). The latter study, apart from its more recent character, also offers the advantage of relating to three disciplines: reading in the language of instruction, maths, and science, whereas the former only relates to maths and science. The analyses carried out on the data available for the majority of the EU Member States (all the countries in the case of PISA) highlight a gender-based segregation in countries that still have education organized on a religious basis, although this segregation is not usually associated with segregation in terms of results. On the other hand, it appears that systems that practice little segregation at school level record low social differences and relatively similar results between institutions. On the other hand, systems which segregate more tend to increase differences in results between social groups. From this viewpoint, and without having to sacrifice effectiveness for equity, quite the contrary, it appears that Finland, whose average results are high and not very dispersed, can be compared with those of Germany, where the average results are relatively poorer and their dispersion much more pronounced. These results also concur with those of an other study (Demeuse & Monseur, 1998) in the field of organization of educational systems in Europe.

The examination of differences in the process can also be continued in the field of education spending. It is usually rather difficult, at least in the industrialized countries, to find a simple relationship between overall education spending and academic achievement. However, it is interesting, in the field that concerns us, to consider the relative allocation of resources within each of the systems: who actually benefits from them? Is the priority basic education that is compulsory for everyone, or tertiary education?. An other approach consists of analysing the sharing-out of resources for a given level of schooling, and in particular, for compulsory education. PISA also allows this to be done. It emerges from the study that Austria stands out due to a pronounced dispersion of teacher-pupil ratios between the various institutions attended by 15 year-old pupils. France, Italy, Portugal and even more so the United Kingdom, Sweden, and Switzerland are characterized by a more equal distribution. The consideration of class sizes leads to a slightly different classification. This parameter is particularly variable in Austria, as well as in Spain, France, and Portugal, while this is not the case in Denmark or in Finland. In this field, the tendency in all European countries to teach pupils of disadvantaged social origin in smaller classes should be pointed out. This situation is particularly pronounced in Belgium, Austria and in France. Positive discrimination policies certainly have some influence on this observation. In the majority of countries, except for Finland, Ireland, Italy, and the United Kingdom, students whose parents were born abroad also tend to be taught in smaller classes. The weakest pupils are also taught in classes whose size does not exceed that of classes attended by the strongest pupils, in all the countries of the Union. Austria, Belgium, and the Netherlands are the countries where the classes attended by the weakest students are smallest.

Besides the material conditions, the climate in the classroom also constitutes a factor that is often quoted among the variables that influence school results. It is via the questionnaire sent to students themselves that this factor was studied through the PISA results. The questions generally relate to the possibility of working properly, in a relatively calm environment,

without wasted time or negative behaviour by the pupils. Boys rather than girls report a climate relatively conducive to work, even if it is difficult to distinguish between their possibly lesser sensitivity to random events and the fact, which is surprising in systems that are in principle mixed, of attending classes that really are less disrupted. Where significant differences exist, they also lead (in 4 cases out of 5) to the conclusion that the most socio-economically disadvantaged students benefit from a more favourable climate.

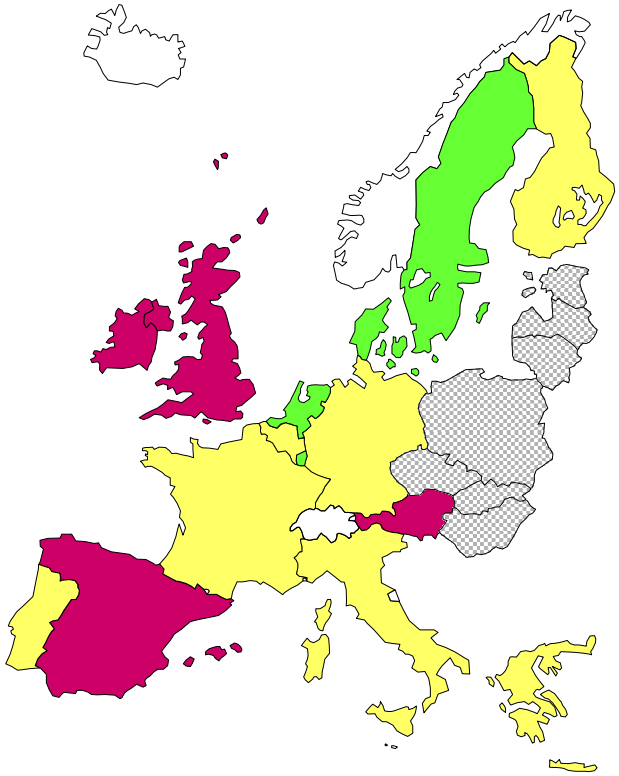
Only Greek students of modest origins, including those coming from families where the parents were born abroad, indicate that they are in a less favourable situation than other pupils are. In 10 of the EU Member States, and in Switzerland, the weakest students also point to a less favourable disciplinary climate than pupils do whose performance is better. The weakest pupils state significantly more than the others that they are in classes where the learning environment is disrupted by noise or misbehaviour by pupils.

The support provided by teachers, at least as perceived by students, can also constitute an important element. Students in the Benelux countries and their Italian, German, and Austrian colleagues state, on average, that they receive the least support. At the other extreme, we find Denmark and Sweden as well as Greece, Ireland and Portugal. In 10 out of 15 EU Member States, girls are more positive than boys are. Students of modest origins or whose parents were born abroad are generally more positive than other pupils about the support received. On the other hand, in the majority of EU Member States, the weakest students consider that they do not receive support that is significantly superior to that of stronger pupils. In Denmark and the United Kingdom, they even record a more negative opinion.

The process indicators are summarised on figure 4.

It would appear useful to add to these indicators information about the pupils' perception of being treated fairly. Via a specific survey, organized in the 5 countries associated with our study (Straeten, Demeuse & Meuret, 2003; Baye, Gorard & Smith, 2005), questions were asked of a sample of 8th grade students, to find out their perception of fairness in the treatment of pupils. Overall, the pupils claim to be treated fairly ("*the teachers treat me fairly*") and their scores are awarded in the same way. On the other hand, they are more critical when asked to assess teachers' behaviour towards certain groups: so they do not consider that everyone is equal when it comes to rewards or punishments. These data, available for only 5 countries, are not included in the synthetic map.

Figure 4 – *Inequalities of school processes.*



Figures 5 and 6 try to offer a general overview of the relative position of each country when the differences between the results and the context or the results and the school processes are taken into account. The general idea is to consider the following situations: a country could obtain a better relative position for the results (Figure 1) than for the context (Figure 3), the same position or a worse one. The same situation could occur if the results are compared to the school processes. If the inequalities of results are less important than the contextual inequalities, it is supposed that school decreases inequalities (medium grey on the map). On the opposite, if the results are more unequal than the context, it is supposed that school increases inequalities (black on the map).

For the comparison "results-context", Belgium, Germany, The Netherlands and Greece obtain a worse position for the results than for the context (black on the map, see Figure 5). On the opposite Italy, Ireland, Spain and Portugal obtain a better position (medium grey on the map). Like the former one, the comparison "results-processes" are not in favour of Belgium, Germany, The Netherlands and Greece. Luxembourg joins the group (black on the map, see Figure 6). The group where the results are less inequitable than the processes is partly different in comparison with the previous figure: Italy and Portugal are replaced by Finland and Austria, but Spain and Ireland remain.

Such a solution to offer a synthesis of a large set of indicators is of course a first way to answer the question of the role of school in the field of inequalities on the macro level. The main idea of the research project is to open the discussion now and to offer a well documented approach to go further.

Figure 5 – *Differences between results and context.*

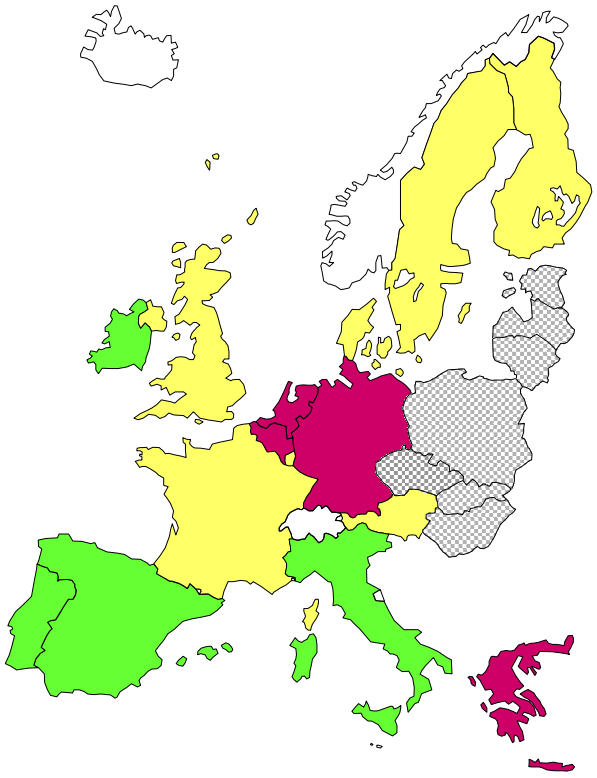
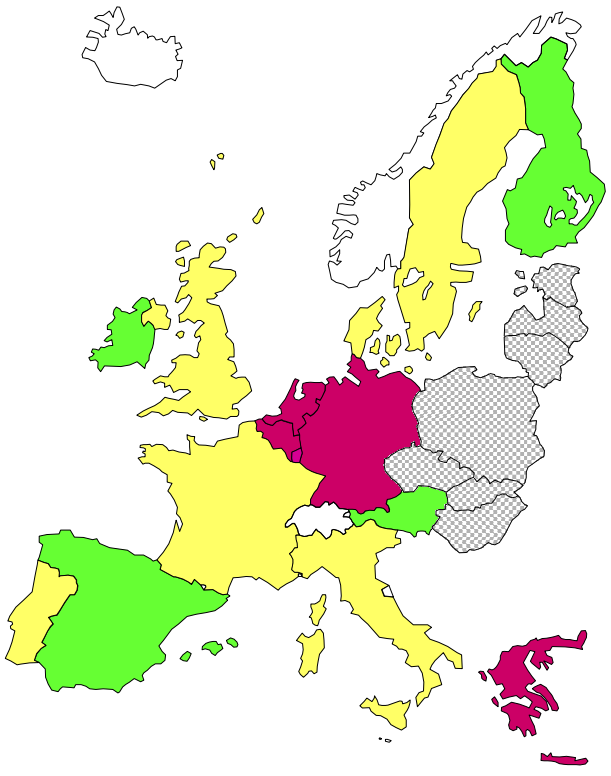


Figure 6 – *Differences between results and processes.*



2.4. In which extent do the educational inequalities benefit to the disadvantaged and favour the social mobility?

According to prevailing practice, the term "disadvantaged" refers to those who have fewer social resources than others or belong to a social category that is subject to discrimination that handicaps them in using their resources (Meuret, 2003).

At this level five groups of indicators are available in the report (Appendix 5):

(1) The mean level of the lowest decile in mathematics and reading.
(2) The contribution of education to GDP per inhabitant growth from one decade to another.
(3) The percentage of poor people decreased by social transfers.
(4) The social mix (ratio of young people whom one parent is very educated and the other disadvantaged / Extra chances to attend an advantaged school when one's parent are educated).
(5) The solidarity values and practices of the most educated people (proportion of answers indicating feeling of solidarity / membership of solidarity associations)

Considering for example the two indicators of the social mix (4), i.e. the fact of the "most educated" and "disadvantaged" having children together, and the fact of sending their children to the same schools, the results are very polarized from a geographical viewpoint. The most educated live with the most disadvantaged more in the countries of the North (Ireland, Sweden and Denmark) than in the countries of the South (Spain, Italy, Portugal). Luxembourg should also be added to the group of southern countries regarding this indicator.

About the solidarity values and practices of the most educated people, the idea is that the more the most educated people claim to share the values of solidarity, the more they should support solidarity mechanisms or participate in solidarity actions. To do this, data from the *European Value Survey* (EVS) of 1999 are used. This reveals a discrepancy between declared values and practices, at least those which are measured by the EVS. In the field of values, France, Greece and Spain are in the leading group, while Austria and Finland are among the back markers. On the other hand, when it is a matter of finding out whether the most educated are members of associations promoting solidarity, the highest proportions are to be found in the Netherlands, Sweden and Finland, and the lowest are in Germany, Luxembourg, and Italy. One possible interpretation is that in the countries that are fairer according to values than according to their practices, subscribing to the values of solidarity would be mainly rhetoric. Another possible interpretation is that in these countries, there is more reliance on action by the State, possibly guided by the social movement, rather than on one's own practice and behaviour to move towards a fairer society.

The indirect effects involve financial redistribution mechanisms. An indicator on the measurement in which, in each country, social transfers reduce the proportion of people on low incomes – supposing that the most educated are among the contributors to these transfers, because they have the best salaries – is used. The effect of such transfers is highest in Denmark, the Netherlands, and Luxembourg, while in Greece, Italy, and Portugal, it is lower.

It appears possible to adopt two modes of ranking. According to the first one, only the practices of the most educated can inform us about their contribution to the long-term expectations of the disadvantaged. In this case, the countries where the Rawlsian principle of difference applies most to education are clearly the Nordic countries (Denmark, Sweden), to which we should add the Netherlands, and those where it applies least are the Latin countries

(Greece, Spain, Italy, and Portugal). According to the second mode, it is legitimate to take account of both values and principles: the geographical spread then becomes less clear-cut, since among the fairest countries, we once again find Sweden and the Netherlands as well as Ireland and, among the unfairest countries, again we find Italy, but Austria and Finland too.

It is clear that there is much work to be done if we are to move forward while observing the Rawlsian principle of difference or what the disadvantaged gain from the education of the most educated, especially as we consider that something important happens in this respect and deserves more work than we were able to devote to it.

3. Conclusion

Reading the previous analyses made by the GERESE (in press), in some education systems, the inequalities in education are homogenous, in that they are pronounced (Germany and to a lesser extent Belgium) or small (Finland, Sweden, and to a less marked extent, Spain and Ireland) according to the three criteria at the same time: inequalities between individuals, between groups, proportion below the threshold. However, it also happens that the three criteria give divergent results, which shows that it actually concerns different dimensions.

The seriousness of those inequalities is mitigated in Sweden while, as the indicators used seem to suggest, the external effects of education are less pronounced than elsewhere. In general, inequalities can be low in countries where education has pronounced external effects, which is the case for Ireland, while they can be relatively low in countries where the effects of education are low. Therefore, the data does not confirm the premise according to which inequalities are low in countries where education has few external rewards.

Analysis of the education process enables us to have an idea of the importance of the systems themselves in the creation of inequalities (inequalities in the allocation of duration of education and spending, as well as that of resources or characteristics associated with pupils' success). Two approaches were proposed. One shows the importance of factors linked with the process of the school system in the genesis of social inequalities in reading: to which extent does the fact that the most favoured have a much more constructive educational context explain their better performance at the age of 15? The other one uses the same method as for the other criteria to calculate a score that measures three types of inequality in the distribution of resources: disparities between individuals, inequalities between groups, resources allocated to the weakest pupils. The resources taken into account are spending per student, class sizes, teacher-student ratios, the disciplinary climate, the support received from teachers, and the absence of academic or social segregation. It should be borne in mind that the latter approach only measures inequalities, whereas the former, but based on a special criterion and dimension, measures the effect of those inequalities on skills.

According to these two approaches at the same time, only one education system is egalitarian: Sweden, while two are inegalitarian: Belgium and Austria. In Belgium, a process accompanies – or probably we should write *produces* – pronounced inequalities; in Austria, it produces "only" moderate inequalities. The fact that the inequalities are generally low in Sweden is consistent with the egalitarian process of this education system.

In the other countries, the assessment diverges according to the two different approaches. Of course, it diverges even more since they are not the same indicators, populations and measurement techniques that are used in the two cases. The first approach points to a particularly pronounced effect on social inequalities in skills – besides Belgium and Austria – in Germany; a particularly small effect – besides Sweden and Denmark, in Finland, Spain, and Ireland. The second indicates a more inegalitarian process than elsewhere for Ireland (so

there is a sharp divergence between these two approaches for this education system) in Greece and the United Kingdom, more egalitarian than elsewhere in France, Luxembourg, and Switzerland. For the last two education systems, an egalitarian process is nevertheless accompanied by moderate inequalities.

One could consider using other indicators than those presented here. Above all, one could conceive other methods of reading these indicators, for example more focused on consistencies, whereas we opted for a comparative and distinctive approach, pursuing a single principle of equity in the labyrinth of indicators, comparing equity, effectiveness and efficiency, etc. Two overall results appear to us to emerge from this analysis: there are definite differences in equity between education systems; there are definitely some education systems that seem more (or less) fair than others on a large majority of the criteria, but for many the judgement of their fairness varies, sometimes considerably, depending on how we read the data.

4. References

Baye, A., Gorard, S., Smith, E. (2005). *Feelings of Justice at School: Results of a Survey Among 8th Graders in Europe.* Paper presented to the Division L - Educational Policy and Politics, American Educational Research Association Annual Meeting (Montréal, April 11-15, 2005).

Bottani, N. (2005). *The European Project on Equity of Education Systems: Background, Organisation and Results.* Paper presented to the Division L - Educational Policy and Politics, American Educational Research Association Annual Meeting (Montréal, April 11-15, 2005).

Demeuse, M. (2004). A set of Equity Indicators of the European Education Systems. A synthesis. In L. Moreno Herrera & G. Francia (eds). *Educational Policies. Implications for Equity, Equality and Equivalence.* Örebro (Sweden): Örebro University, Reports from the Department of Education.

Demeuse, M., Baye, A. (2005). Pourquoi parler d'équité ? In M. Demeuse, A. Baye, M.H. Straeten, J. Nicaise, A. Matoul (eds). *Vers une école juste et efficace. 26 contributions sur les systèmes d'enseignement et de formation.* Bruxelles : De Boeck, Collection « Economie, Société, Région ».

Demeuse, M., Monseur, C. (1998). *Pour accroître l'efficacité des systèmes d'enseignement : recherche des facteurs d'efficacité et étude comparative des dispositifs de pilotage.* Liège : Université de Liège (Rapport final, non publié, juin 1998).

Demeuse, M., Crahay, M., Monseur, C. (2001). Efficiency and Equity. In W. Hutmacher, D. Cochrane, N. Bottani. *In Pursuit of Equity in Education. Using international indicators to compare equity policies.* Dordrecht : Kluwer.

Demeuse, M., Crahay, M., Monseur, C. (2005). Efficacité et équité dans les systèmes éducatifs. Les deux faces d'une même pièce ? In M. Demeuse, A. Baye, M.H. Straeten, J. Nicaise, A. Matoul (eds). *Vers une école juste et efficace. 26 contributions sur les systèmes d'enseignement et de formation.* Bruxelles : De Boeck, Collection « Economie, Société, Région ».

Demeuse, M., Baye, A., Straeten, M.H., Nicaise, J., Matoul, A. (eds). *Vers une école juste et efficace. 26 contributions sur les systèmes d'enseignement et de formation.* Bruxelles : De Boeck, Collection « Economie, Société, Région ».

GERESE (in press) Equity of the European Educational Systems. A set of indicators. *European Educational Research Journal.*

Meuret, D. (2001). A System of Equity Indicators for Educational Systems. In W. Hutmacher, D. Cochrane, N. Bottani (eds). *In Pursuit of Equity in Education. Using international indicators to compare equity policies*. Dordrecht : Kluwer.

Meuret, D. (2003). Les inégalités d'éducation sont-elles au bénéfice des défavorisés ? *Les Cahiers du Service de Pédagogie expérimentale, 15-16,* 649-662.

Meuret, S. (2005). *Key Principles for Measuring the Equity of Education Systems.* Paper presented to the Division L - Educational Policy and Politics, American Educational Research Association Annual Meeting (Montréal, April 11-15, 2005).

Monseur, C., Demeuse, M. (2004). Quelques réflexions méthodologiques à propos des enquêtes internationales dans le domaine de l'éducation. *Politiques d'Education et de Formation*, 11, 37-54.

Morlaix, S. (2005). *The Index of Sen, Measuring Instrument of the Equity of the Educational System.* Paper presented to the Division L - Educational Policy and Politics, American Educational Research Association Annual Meeting (Montréal, April 11-15, 2005).

Nicaise, J., Straeten, M.H., Baye, A., Demeuse, M. (2005). Comment développer un système d'indicateurs d'équité au niveau européen ? In M. Demeuse, A. Baye, M.H. Straeten, J. Nicaise, A. Matoul (eds). *Vers une école juste et efficace. 26 contributions sur les systèmes d'enseignement et de formation.* Bruxelles : De Boeck, Collection « Economie, Société, Région ».

Straeten, M.H., Demeuse, M., Meuret, D. (2003). Les normes, sentiments et critères de justices des élèves. Une enquête européenne auprès des élèves du 8e grade. *Les Cahiers du Service de Pédagogie expérimentale, 15-16,* 663-670.

Wolfe, B. et Haveman, R. (2000). *Accounting fort the social and non-market benefits of education.* University of Wisconsin-Madison.

Appendix 1 - *Measurement of (un)fairness of results: summary of main results.*

Country	**Differences between individuals**			**Differences between groups**				**Students below the threshold of skills**				
	Standard deviation of PISA scores	Percentage of 25-34 year-olds not in the modal category of qualification	Inequality of schooling expectancy for the 10% who have the shortest and the 10% who have the longest school careers	Differences of cognitive skills, according to the socio-economical background	Differences of cognitive skills, according to parents' nationality	Differences of cognitive skills, according to the gender	Inequalities of schooling expectancies according to the gender	Percentage of students with very low score in reading	Schooling expectancies for the 10% who have the shortest school careers	Sen's index	Deviation between students with very low scores and others	Percentage of 25-34 year-olds below high secondary education
	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*	*(9)*	*(10)*	*(11)*	*(12)*
Finland	87.14	51.86	13.0	0.54	0.26	0.20	107.3	6.9	10.0	0.76	-206.62	14.41
Sweden	94.02	44.70	10.2	0.71	0.32	0.11	119.3	12.6	10.8	0.85	-213.29	12.96
Ireland	90.04	62.76	5.5	0.74	-0.16	0.07	105.1	11.0	10.3	1.23	-203.65	33.30
Denmark	95.39	41.41	13.3	0.80	0.38	0.01	105.8	17.9	9.7	0.81	-212.08	12.78
Spain	91.64	54.52	12.4	0.70	0.25	0.03	104.1	16.3	9.5	1.11	-207.41	45.48
Austria	94.90	29.37	13.2	0.65	0.53	0.04	98.7	14.6	9.4	1.18	-199.98	16.82
France	96.22	54.55	11.4	0.85	0.31	0.05	102.4	15.2	10.7	1.23	-211.61	23.63
Portugal	92.31	30.48	12.9	0.91	-0.07	0.04	103.6	26.3	9.4	1.56	-198.06	69.52
United Kingdom	97.47	61.35	13.0	0.93	0.09	0.05	108.8	12.8	10.0	0.79	-215.47	34.09
Italy	93.76	54.55	-	0.62	-0.06	0.13	103.2	18.9	-	2.28	-212.06	44.55
The Netherlands	91.64	51.13		0.81	0.71	0.07	97.1	-	10.8	1.15	-216.08	26.00
Greece	99.50	53.99	10.7	0.71	0.21	0.12	102.6	24.4	9.4	1.61	-212.63	28.84
Germany	101.04	36.37	12.0	0.98	0.55	0.07	98.8	22.6	10.8	1.91	-224.87	14.82
Belgium	104.90	60.87	10.3	0.98	0.62	0.09	103.8	19.0	11.6	1.25	-244.03	27.00
Luxembourg	100.15	60.21	-	0.90	0.52	0.08	-	35.1	-	1.67	-214.93	39.00

Appendix 2 - *Magnitude of benefits associated with a better education.*

Country	Tertiary education return (1)		Additional year of education return (2)		Salary linked with tertiary education (3)		Employment probability (4)		Unemploy-ment decrease (5)	Professional status (6)	Reading level (7)	Continuing training (8)	Cultural practices of children (9)	Communication with children (10)	Children skills (11)
	Male	Female	Male	Female	Male	Female	Male	Female							
Sweden	11.40	10.80	4.00	3.00	155.00	141.00	106.00	118.00	76.00	145.00	117.00	1.90	0.30	0.20	1.10
Greece	-	-	6.00	4.00	-	-	-	-	21.00	149.00	-	-	0.20	0.20	3.20
Ireland	-	-	9.00	7.00	-	-	-	-	-	136.00	130.00	3.90	0.20	0.20	2.20
Austria	-	-	7.00	7.00	-	-	-	-	74.00	141.00	-	-	0.60	0.30	4.30
Italy	6.50	-	6.00	5.00	170.00	166.00	112.00	372.00	35.00	147.00	-	5.80	0.50	0.30	2.60
The Netherlands	12.00	12.30	6.00	5.00	160.00	143.00	135.00	393.00	53.00	136.00	120.00	2.20	0.50	0.30	-
France	12.20	11.70	8.00	6.00	-	-	-	-	65.00	142.00	-	-	0.50	0.30	2.70
Denmark	13.90	10.10	6.00	6.00	-	-	-	-	63.00	141.00	118.00	2.10	0.40	0.40	9.40
Spain	-	-	7.00	6.00	-	-	-	-	32.00	152.00	-	-	0.50	0.40	3.60
Belgium	-	-	-	-	-	-	-	-	74.00	145.00	119.00	5.20	0.40	0.10	2.60
Portugal	-	-	10.00	8.00	-		-	-	21.00	152.00	127.00	6.90	0.50	0.40	1.10
Luxembourg	-	-	-	-	-		-	-	-	148.00	-	-	0.60	0.20	2.50
Germany	9.00	8.30	8.00	7.00	157.00	156.00	119.00	152.00	73.00	135.00	123.00	3.80	0.60	0.40	5.40
Finland	-	-	9.00	9.00	175.00	173.00	130.00	138.00	62.00	149.00	120.00	2.10	0.40	0.20	3.70
United Kingdom	17.30	15.20	9.00	8.00	172.00	196.00	128.00	135.00	82.00	131.00	117.00	2.30	0.60	0.30	5.50

Appendix 3a - *The social, economic and cultural context in which European educational systems operate.*

Country	**Proportion of poor households**	**Dispersion of household resources**	**Unemployment rate**	**Proportion of adults with a low level of education**	**Dispersion of cultural resources**	**Dispersion of cultural practices**	**Dispersion of professional aspirations**
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Denmark	8.70	0.76	4.50	20.00	0.97	0.90	18.50
The Netherlands	8.10	0.68	2.70	35.00	0.93	0.96	16.54
Sweden	2.60	0.82	5.50	19.00	0.97	0.97	17.30
Finland	2.80	0.71	11.20	26.00	0.99	0.94	18.69
Ireland	13.80	0.84	4.40	42.00	1.00	0.90	17.28
Germany	10.60	0.85	8.00	18.00	0.98	0.96	16.67
Austria	15.00	0.78	4.70	24.00	0.96	1.02	15.45
France	7.90	0.75	10.30	36.00	1.00	0.94	18.09
Belgium	7.70	0.78	6.60	42.00	0.99	0.97	17.92
United Kingdom	15.40	0.84	5.60	17.00	1.05	0.99	16.72
Portugal	_	0.98	4.10	80.00		0.94	16.54
Greece	_	0.85	11.30	49.00	0.87	0.88	16.73
Luxembourg	4.50	0.90	2.40	47.00	1.04	1.03	16.82
Italy	20.20	0.79	11.00	55.00	0.91	0.97	16.64
Spain	12.20	0.83	14.10	59.00	0.96	0.97	18.14

Appendix 3b - *Social, economic and cultural inequalities, depending on individual variables.*

Country	**Family wealth**		**Unemployment rate**		**Level of education**		**Cultural resources**				**Cultural practices**				**Professional aspirations**			
	Social origin	National origin	Male	Female	Male	Female	Gender	Social origin	National origin	Reading	Gender	Social origin	National origin	Reading	Gender	Social origin	National origin	Reading
Sweden	0.44	0.50	6.00	5.10	21.00	18.00	0.02	-0.59	0.08	-0.53	-0.23	-0.29	0.14	-0.17	-0.20	-0.36	0.32	0.72
Greece	0.83	0.09	7.50	16.90	46.00	51.00	-0.20	-0.47	0.22	-0.55	-0.17	-0.10	-0.27	-0.10	-0.18	-0.35	-0.26	-0.80
Ireland	0.75	0.03	4.40	4.20	45.00	40.00	-0.24	-0.34	-0.08	-0.45	-0.47	-0.19	0.07	-0.22	-0.20	-0.34	0.20	-0.90
The Netherlands	0.53	0.20	2.20	3.50	37.00	39.00	-0.18	-0.44	-0.41	-0.40	-0.35	-0.35	-0.12	-0.40	0.12	-0.45	0.16	-0.85
Finland	0.68	0.46	10.40	12.00	28.00	24.00	-0.17	-0.48	0.12	-0.50	-0.46	-0.28	0.45	-0.22	-0.09	-0.45	0.26	-0.66
United Kingdom	0.73	0.16	6.20	4.90	31.00	43.00	-0.21	-0.47	-0.07	-0.48	-0.27	-0.40	0.13	-0.36	-0.06	-0.46	0.43	-0.77
Denmark	0.56	0.51	4.00	5.00	18.00	21.00	-0.05	-0.49	-0.09	-0.44	-0.26	-0.31	0.05	-0.40	-0.18	-0.52	0.46	-0.71
Spain	1.01	-0.06	9.70	20.50	58.00	60.00	-0.15	-0.49	0.17	-0.58	-0.26	-0.42	0.02	-0.58	-0.15	-0.38	-0.04	-0.91
Austria	0.56	0.44	4.80	4.60	18.00	31.00	-0.20	-0.47	0.03	-0.45	-0.24	-0.31	-0.12	-0.42	-0.17	-0.51	-0.07	-0.83
Portugal	1.31	-0.22	3.20	5.10	81.00	79.00	-0.19	-0.59	-0.10	-0.65	-0.17	-0.28	-0.01	-0.34	-0.08	-0.49	0.17	-0.80
Germany	0.69	0.48	7.70	8.30	13.00	21.00	-0.15	-0.50	0.02	-0.49	-0.16	-0.43	-0.22	-0.47	-0.11	-0.41	0.04	-0.75
Belgium	0.69	0.04	5.30	8.30	41.00	42.00	-0.24	-0.52	-0.37	-0.57	-0.30	-0.43	-0.22	-0.60	-0.22	-0.67	0.01	-1.00
France	0.76	0.25	8.60	12.30	33.00	39.00	-0.24	-0.45	-0.29	-0.66	-0.16	-0.26	-0.13	-0.35	-0.21	-0.52	0.12	-0.78
Italy	0.90	0.09	8.40	14.90	56.00	57.00	-0.27	-0.55	*0.50*	*-0.47*	-0.23	-0.28	0.36	-0.24	-0.42	-0.41	-0.53	-0.57
Luxembourg	0.89	0.44	1.80	3.20	42.00	53.00	-0.13	-0.57	0.09	-0.65	-0.20	-0.31	-0.37	-0.37	0.16	-0.26	0.10	-0.49

Appendix 4a - *Inequalities in the education process.*

Country	**Quality of education received**					
	Basic / tertiary education	**Pupils / teacher ratio**	**Class size**	**Schooling in small classes**		
				Low socio-economical background students	**National origin**	**Weak students**
	(1)	*(2)*	*(3)*	*(4)*		
Sweden	248	2.9	4.6	97	93	89
The Netherlands	295	_	4.9	92	88	73
Denmark	159	4.6	3.6	98	98	98
Luxembourg	_	_	4.5	91	91	89
Germany	272	4.6	4.5	94	97	86
Finland	196	4.5	3.2	97	100	90
France	190	3.7	5.9	90	97	78
Portugal	138	3.9	5.8	96	96	95
Italy	141	3.5	4.3	98	102	98
Greece	196	5.1	5.0	94	95	92
Belgium	246	5.5	5.6	85	86	71
United Kingdom	263	2.5	5.2	98	100	85
Ireland	320	5.9	5.5	92	101	78
Austria	184	8.1	6.7	89	91	76
Spain	157	4.8	6.2	93	95	94

Appendix 4b - *Inequalities in the education process, depending on individual variables.*

	Quality of education received														
	Segregation					**Disciplinary climate in the classes**					**Support provided by teachers**				
	Reading	**Parental occupation**	**Gender**	**Linguistic origin**	**National origin**	**Standard deviation**	**Weak students**	**Gender**	**Social origin**	**National origin**	**Standard deviation**	**Weak students**	**Gender**	**Social origin**	**National origin**
	(5)					*(6)*					*(7*				
Sweden	29.2	26.7	8.5	51.6	29.2	0.85	0.3	0.01	0.06	-0.02	0.90	-0.04	-0.05	-0.04	0.12
The Netherlands	66.0	30.3	10.2	57.8	32.5	0.90	-0.04	-0.01	-0.03	-0.04	0.81	0	-0.03	0.02	0.18
Denmark	38.9	32.9	9.5	51.1	36.6	0.77	0.15	-0.02	0.04	-0.1	0.84	-0.23	-0.02	-0.09	0.13
Luxembourg	40.8	23.7	12.3	25.4	12.6	1.11	0.03	0.14	-0.01	0.05	1.13	0.1	-0.15	0.12	0.16
Germany	60.8	35.6	11.2	53.2	35.9	1.02	0.17	0.07	0.07	0	0.97	0.25	-0.03	0.11	0.16
Finland	27.4	35.8	7.3	74.7	50.2	0.91	0.31	0.03	0.02	0.17	0.87	-0.05	-0.12	0.02	0.48
France	56.3	30.5	11.9	59.7	29.1	1.05	0.04	0.05	-0.05	0.05	0.97	0	-0.09	0.09	0.08
Portugal	48.1	39.7	7.5	70	35.6	0.83	0.18	0.13	0.02	0.15	0.93	-0.03	-0.17	0.06	0.06
Italy	58.2	30	23.1	84.3	37.4	0.97	0.28	0.24	0.1	0.42	0.86	0.24	-0.02	0.15	-0.33
Greece	58.4	43.3	12.5	68.2	33.8	0.89	0.03	0.12	-0.11	-0.28	0.97	-0.06	-0.23	0.06	0.03
Belgium	66.2	36.1	21.9	60.9	35.9	1.01	-0.03	-0.03	-0.05	0.03	0.93	0.11	-0.17	0.02	0.13
United Kingdom	42.8	30.8	16	71.3	38.2	1.03	0.39	0.08	0.11	0.08	0.98	-0.2	-0.09	0	-0.03
Ireland	39.0	28.8	29.7	79.7	27.9	1.12	0.38	0.18	0.08	0.05	1.04	-0.02	-0.2	0.04	0.03
Austria	61.8	36.4	28.4	53.3	38.9	1.11	0.14	0.06	0.04	0.01	1.03	0.03	-0.09	0.06	0.07
Spain	40.0	31.6	9.9	75.4	41.2	0.98	0.3	0.13	0.08	-0.07	1.05	-0.09	-0.29	0.13	0.05

Appendix 5 - *Contribution by the education system to the situation of the poorest people.*

Country	**Skills of the weakest students**	**Contribution to economical gross**	**Social transfers**	**To live together**		**Solidarity values and practices of the most educated people**	
	Mean of the bottom deciles in mathematics and reading literacy	***Contribution of education to GDP per inhabitant growth from one decade to an other***	***Percentage of poor people decrease by social transfers***	***Ratio of young people whom one parent is very educated and the other disadvantaged***	***Extra chances to attend an advantaged school when one's parents are educated***	***Proportion of answers indicating feelings of solidarity***	***Are members of solidarity associations***
	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*
Sweden	370	0.42	_	29.00	1.10	*44*	65.00
The Netherlands	_	0.43	50.00	22.00	1.10	*38*	70.00
France	372	0.65	41.00	21.00	1.30	*56*	19.00
Belgium	404	0.45	39.00	25.00	1.30	_	_
Denmark	384	0.20	63.00	25.00	1.10	_	_
Ireland	377	0.54	46.00	27.00	1.10	*49*	11.00
Spain	334	0.90	31.00	14.00	1.40	*62*	19.00
Finland	412	0.44	_	17.00	1.20	*34*	33.00
United Kingdom	382	0.44	41.00	21.00	1.20	_	_
Italy	335	0.84	10.00	16.00	1.40	*47*	18.00
Austria	387	0.31	46.00	16.00	1.30	*37*	21.00
Luxembourg	298	_	50.00	9.00	1.20	*35*	54.00
Germany	342	_	30.00	18.00	1.20	*50*	5.00
Greece	323	0.57	8.00	19.00	1.30	*53*	16.00
Portugal	316	0.32	19.00	16.00	1.30	*50*	22.00