LES CAHIERS DE RECHERCHE EN EDUCATION ET FORMATION

ACHIEVEMENT EFFECTIVENESS AND EQUITY

The role of Tracking, Grade-Repetition and Inter-school Segregation

Vincent Vandenberghe*

N° 28 ● AOÛT 2004●

girsef
GROUPE INTERFACULTAIRE DE RECHERCHE SUR LES SYSTEMES D'EDUCATION ET DE FORMATION

CHAIRE UNESCO DE PÉDAGOGIE UNIVERSITAIRE
CPU

L'éducation et la formation constituent des enjeux fondamentaux pour la société contemporaine. Deux équipes de recherche à l'UCL se préoccupent de ces questions : le GIRSEF et la CPU.

Le GIRSEF est un groupe de recherche pluridisciplinaire fondé en 1998 afin d'étudier les systèmes d'éducation et de formation. L'attention est portée notamment sur l'évaluation de leurs résultats en termes d'équité et d'efficacité, sur leurs modes de fonctionnement et de régulation, sur les politiques publiques à leur endroit, les logiques des acteurs principaux ou encore sur le fonctionnement local des organisations de formation ou l'engagement et la motivation des apprenants. Sur le plan empirique, ses recherches portent essentiellement sur le niveau primaire et secondaire d'enseignement, mais aussi sur l'enseignement supérieur et la formation d'adultes.

La Chaire de Pédagogie Universitaire (CPU) a été créée en mai 2001 et a reçu le label de Chaire UNESCO sur l'Enseignement Supérieur en septembre 2002. Elle assure également le secrétariat et la coordination du réseau européen des chaires Unesco sur l'Enseignement supérieur. Elle a pour mission de contribuer à la promotion de la qualité de la pédagogie universitaire à l'UCL, par le biais de la recherche dans le domaine et de l'enseignement (DES en pédagogie universitaire).

La série des Cahiers de recherche en Education et Formation était précédemment publiée sous le nom de « Cahiers de recherche du GIRSEF ». Cette série a pour objectif de diffuser les résultats des travaux menés au sein de la CPU et du GIRSEF auprès d'un public de chercheurs en sciences de l'éducation et de la formation ainsi qu'auprès des acteurs et décideurs de ces deux mondes.

L'ensemble de la série est téléchargeable gratuitement depuis les sites du GIRSEF(www.girsef.ucl.ac.be), de la CPU (www.cpu.psp.ucl.ac) ainsi qu' I6DOC (www.i6doc.com).

*Associate Professor, Economics Department, IRES-GIRSEF, Université Catholique de Louvain, 1, place Montesquieu, bte 14 , B-1348 Louvain-la-Neuve, Belgium ; tel (+32) 10 47 41 41 ; Fax(+32) 10 47 24 00 ; email : vandenberghe@ires.ucl.ac.be. The authors gratefully acknowledge financial support from the Belgian French Community's program "Actions de Recherches Concertées" n° 02/07-274. We would like to thank X. Daumay for helpful comments. The author assumes sole responsibility for remaining omissions and errors.

Table of Content

Abstract

Grouping students together according to their ability – in vocational vs. academic tracks, in different grades or schools -- are frequently denounced within educational circles as being ineffective and/or source of additional inequality. Yet very few international studies have attempted to evaluate the effects of these practices on educational performance. This paper attempts to fill this gap using standardised scores in math, science and reading literacy at the age of 15 published by the OECD in 2000. Results are that ability grouping has no impact on effectiveness (country mean scores). And the intensity of inequality (within country dispersion of scores) is also hard to predict. It is only for math that higher inter-school segregation -- but not tracking or grade repetition-- seems to lead to higher inequality.

JEL classification : I28 (Education: Government Policy). H520 (National Government Expenditures and Education).

Keywords : Education Economics, Tracking, Grade Repetition, School Segregation, Effectiveness Inequality

Introduction

The persistence of tracks (academic vs. vocational) separating pupils according to their ability, the prevalence of grade-repetition as sanctions for low achievers, and school segregation – in brief education policies that differenciate -- are frequently denounced within educational circles as being detrimental to performance. There is a theoretical literature that generally concludes that ability segregation is not optimal from a societal point of view (Bénabou, 1996). Empirical literature, exploiting national data, is also abundant (Gamoran & Nystrand, 1994 for example). But, to our knowledge, very few empirical studies, using international data, have attempted to evaluate the effects of these ability grouping policies on educational performance. One possibility to fill this gap is to examine scores at the age of 15 collected in 2000 by the OCDE for a large set of OECD and non-OECD member states. This paper uses this unique data set in order to answer a simple question. Does ability grouping -- here broadly defined as the propensity of education systems to separate pupils into different tracks, grades and schools -- comes at cost either in terms of lower effectiveness (lower mean score for the country) or higher inequality (higher standard deviation of scores for example) ?

This paper is organized in 3 sections. Section 1 briefly exposes our theoretical framework i.e. the way we measure (in)equality and effectiveness and how we relate these measures to tracking, grade repetition and inter-school segregation. Section 2 presents the international data set we use, while Section 3 contains the results of our empirical analysis and our concluding comments.

1. How to properly measure effectiveness and (in)equality and relate it to tracking, grade repetition and inter-school segregation?

To produce some measure of inequality or effectiveness is really easy (see Dupriez,Vandenberghe, & Zachary (2001) for example). Yet, direct comparison of countries in terms of inequality of achievement or average achievement can be seriously misleading. There is indeed plenty of evidence to support the idea that achievement still largely reflects inter-individual differences in terms of endowment (parental socio-economic background...). Ignoring this or assuming implicitly that the average endowment and – more importantly – its distribution within countries is uniform must inevitably skew the results. A country might have a relatively high level of inequality of achievement because its population is very diverse and heterogeneous, and conversely.

In fact we should only conclude to differentials among countries once the effect of structural differences in terms of background/Socio-Economic Status (*SES*) variables have be extracted from the initial variance of results. We believe this can be done using OLS estimates, based on the pooled data (all countries together), to compute the difference between observed and expected results. Algebraically we have:

$$PScore_{ij} = \alpha_j + \beta*(SES_{ij}-SES..) \quad (1)$$

$$R_{ij}=Score_{ij} - Pscore_{ij} \quad (2)$$

where:

- $Score_{ij}$: observed achievement

- $Pscore_{ij}$: expected achievement given a student' SES

- β is the OLS coefficient estimated using the pooled data (a measure of the average level of inequity)

- R_{ij}= is the residual

- SES_{ij}: student' socio-economic profile

- i: student index

- j: country index

Note also that by centering SES_{ij} on the international mean ($SES_{..}$), estimated α_j corresponds to expected mean achievement had the average socio-economic profile in country j be equal to the international average ($PSE_{.j}=PSE..$)

Any comparison based on a measure of dispersion of the residual (R_{ij}) instead of observed score should provide a better representation of actual performance in terms of inequality of achievement.

Our central aim is to capture the potential effect of segregation (and related phenomena like tracking and grade-repetition) on both effectiveness and inequality.

The strategy we adopt is based on the estimation of Ancova[1] models capturing the % of total (adjusted) variance (*RSQUAREj*) of achievement (RES_{ij} in equation 2) that is explained by the track (general or vocational) students are attending , the grade in which they are (normal or below-normal) and the school they belong to (*TRACK, GRADE & SCHOOLID*).

We consider that the higher *RSQUARE* the higher the level of segregation in the country. Why? Segregation is greater if pupils with particular scores (low or high) are systematically concentrated in some tracks, attend a particular grade or are regrouped in some schools. The absence of segregation would correspond to a situation where all pupils attend the same track, grade and where low and high achievers are present in equal proportion in every school present in the PISA sample. And in that context our model would be a

[1] Ancova models are regression models combining categorial variables (generally analyzed with Anova models) and continuous ones (i.e. covariates).

poor predictor of achievement. In other words, *RSQUARE* would be close to zero. If, on the contrary, track, grade and school attended are good predictors of achievement then our model should fit well to the data. And, by definition, this would increase *RSQUARE*.

$$RES_{ij}=\chi_j+ \delta_{ij}*TRACK_{ij} + \phi_{ij}*GRADE_{ij} + SCHOOLID_{ij}+ \varepsilon_{ij} \quad (3)$$

where:

- $TRACK_{ij}$=1 if student is attending vocational track; 0 otherwise
- $GRADE_{ij}$=1 if student has undergone grade repetition (ie. is attending (modal) grade 10);
- $SCHOOLID_{ij}$= is a school fixed-effect

The last step of the analysis consists regressing the (adjusted) measure of performance (both average residual ($MEAN_j$) and various measures of inequality ($INEQ_j$)) on the level of variance explained by tracking, grade repetition (i.e. lower-than-normal grade attendance), and inter-school segregation captured by the $RSQUARE_j$ from the estimation of equation 3.

$$INEQj=\gamma+\eta*RSQUARE_j + u_j \quad (4)$$

$$MEANj=\zeta+ \lambda*RSQUAREj + v_j \quad (5)$$

2. Data

The data we use to assess the impact of segregation on effectiveness and inequality is relatively unique. It comes from the 2000 OECD survey (the so-called PISA project, Program for International Student Assessment). This database contains math, science and reading test scores of students aged 15 across 34 OECD and non-OECD countries. These students are nested within schools, potentially attending different grades in countries with grade repetition or tracks. To carry out our analysis, we only selected all countries bar the Netherlands as sampling requirements where not respected by the local team in charge of the survey. This leads to a subset of 32 countries or regions: Australia (AUS), Austria (AUT), French-Speaking Belgium (BELF), Dutch-Speaking Belgium (BELN), Brazil (BRA), Canada (CAN), Switzerland (CHE), Czech Republic (CZ), Denmark (DEN), Spain (ESP), Finland (FIN), France (FRA), Germany (GER), Greece (GRC), Hungary (HUN), Ireland (IRE), Iceland (ISL), Italy (ITA), Japan (JPN), South Korea (KOR), Liechtenstein (LEI), Luxembourg (LUX), Latvia (LVA), Mexico (MEX), Norway (NOR), New-Zealand (NZ), Poland (POL), Portugal (PRT), Russia (RUS), Sweden (SWE), the United Kingdom (UK), the United States (USA).

The data set is relatively rich in terms of individual characteristics and family socio-economic background/status; information that are known to affect academic achievement. The analysis we present make use of a Socio-Economic-Status index (SES) which we build using three sorts of indices present in the PISA data set.

Highest parental index of Occupational status (HISEI)

The PISA Highest[2] Parental Socio-Economic Index of Occupational Status was derived from student responses on parental occupation. Students were first asked to report their mother's and father's occupation, and to state whether each parent was: in full-time paid work; in part-time paid work; not working but looking for a paid job; or *other*. The open-ended responses were then coded in accordance with the International Standard Classification of Occupations (ISCO 1988). The index capture the attributes of occupations that convert parents' education into income.

Family wealth (WEALTH)

The index of family wealth was derived from students' reports on: (i) the availability in their home of a dishwasher, a room of their own, educational software, and a link to the Internet; and (ii) the numbers of cellular phones, televisions, computers, motor cars and bathrooms at home. Scale scores are standardised *Warm* estimates, where positive values indicate more wealth-related possessions and negative values indicate fewer wealth-related possession.

Home educational resources (HEDRES)

Finally the index of home educational resources was derived from students' reports on the availability and number of the following items in their home: a dictionary, a quiet place to study, a desk for study, text books and calculators. Scale scores are standardised *Warm* estimates where positive values indicate possession of more educational resources and negative values indicate possession of fewer educational resources by the student's family.

Our SES index combines these three indices. We first standardize each index (*HISEI, WEALTH, HEDRES*) by topic. We then simply compute the simple average and standardise the result again by topic [3].

[2] Highest of the mother and father.

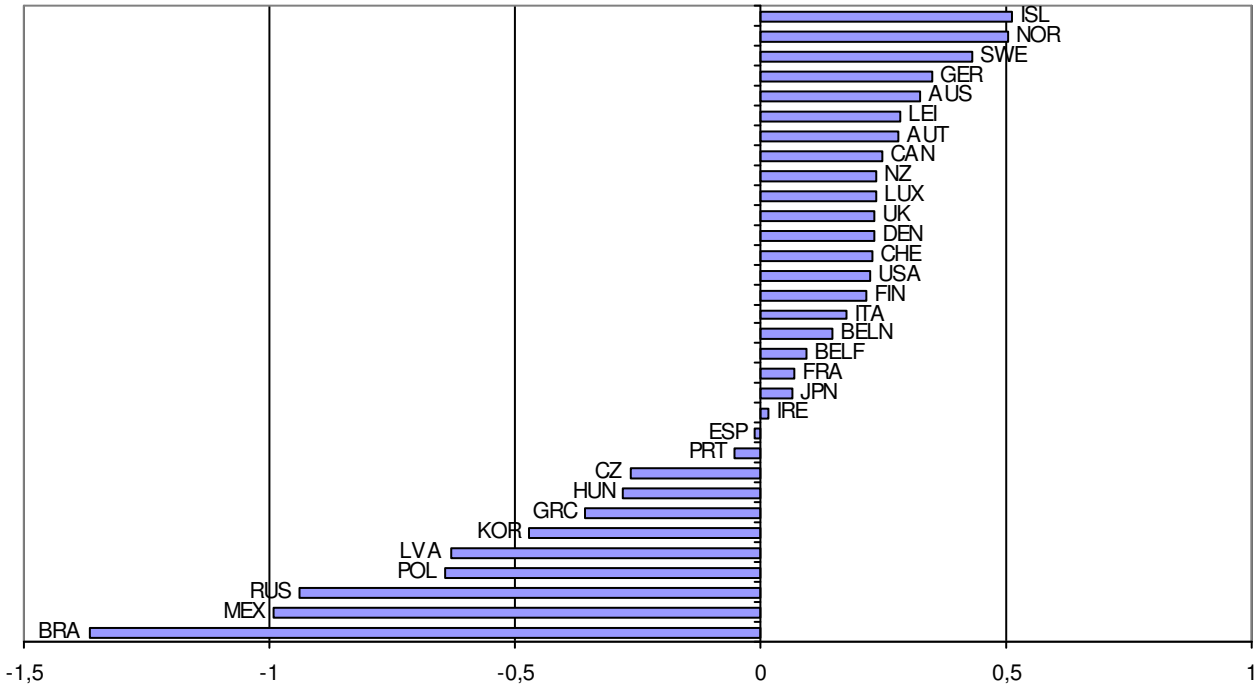
[3] In both cases, standardisation means imposing that Mean=0 and Standard deviation=1.

Table 1 – Descriptive statistics. Average (mean) and standard deviation of scores and socio-economic status (SES) indices. Breakdown by topic and country

Country	Score						SES					
	Math		Read		Scie		Math		Read		Scie	
	mean	std	mean	std	mean	std	mean	std	mean	std	mean	std
AUS	527.07	94.61	524.65	103.53	522.29	98.44	0.34	0.92	0.34	0.91	0.32	0.90
AUT	505.98	94.85	498.27	94.82	508.02	95.03	0.30	0.73	0.29	0.73	0.28	0.73
BELF	493.65	108.44	480.79	111.77	472.61	118.30	0.11	0.89	0.11	0.89	0.09	0.89
BELN	541.65	95.69	537.36	92.51	519.26	95.10	0.13	0.80	0.17	0.78	0.15	0.80
BRA	352.34	89.04	390.18	91.03	378.60	101.48	-1.37	1.25	-1.39	1.24	-1.37	1.24
CAN	522.21	87.47	522.63	95.74	518.14	90.92	0.26	0.91	0.25	0.91	0.25	0.92
CHE	527.75	97.64	496.08	98.03	496.82	97.67	0.20	0.80	0.21	0.80	0.23	0.79
CZ	499.07	98.17	497.11	94.95	510.51	96.51	-0.29	0.84	-0.25	0.84	-0.26	0.84
DEN	514.22	87.79	498.01	97.56	484.39	100.87	0.22	0.85	0.22	0.84	0.23	0.83
ESP	480.63	91.81	494.12	85.86	491.14	97.24	-0.01	0.85	-0.02	0.84	-0.01	0.85
FIN	533.11	83.19	544.89	88.20	534.02	90.02	0.22	0.82	0.21	0.83	0.21	0.83
FRA	513.58	94.35	502.93	93.36	498.51	102.83	0.05	0.84	0.06	0.82	0.07	0.83
GER	499.77	99.32	498.22	102.91	496.71	100.80	0.34	0.79	0.35	0.78	0.35	0.79
GRC	451.81	103.31	473.86	96.90	463.71	98.02	-0.31	0.94	-0.33	0.94	-0.36	0.93
HUN	486.12	96.83	482.24	91.08	494.17	100.60	-0.27	0.91	-0.26	0.90	-0.28	0.91
IRE	501.72	85.91	526.36	92.81	513.30	91.23	0.01	0.87	0.02	0.88	0.02	0.89
ISL	513.70	87.25	506.49	92.89	496.53	90.27	0.50	0.78	0.50	0.82	0.51	0.84
ITA	461.65	92.53	489.51	90.70	480.47	98.07	0.14	0.81	0.16	0.80	0.18	0.81
JPN	554.55	88.90	523.50	87.30	546.59	93.70	0.06	0.77	0.05	0.77	0.07	0.76
KOR	536.76	86.97	519.57	72.99	540.77	85.43	-0.50	0.80	-0.50	0.79	-0.47	0.80
LEI	511.86	106.59	483.73	93.66	479.22	91.67	0.27	0.77	0.29	0.76	0.28	0.78
LUX	453.52	98.07	449.81	103.42	452.91	99.39	0.22	0.88	0.22	0.87	0.24	0.87
LVA	466.24	102.69	462.76	100.68	464.24	100.24	-0.64	0.97	-0.63	0.96	-0.63	0.97
MEX	406.34	86.88	429.34	88.70	435.11	84.23	-0.99	1.25	-1.00	1.24	-0.99	1.25
NOR	497.97	93.33	503.92	103.74	499.44	98.48	0.50	0.81	0.51	0.83	0.50	0.86
NZ	532.50	97.77	526.10	106.32	523.30	98.63	0.23	0.93	0.24	0.93	0.24	0.93
POL	464.28	100.30	469.13	99.92	475.85	98.20	-0.64	1.00	-0.66	0.99	-0.64	0.99
PRT	462.33	91.95	478.43	95.49	468.68	89.48	-0.04	0.93	-0.04	0.92	-0.05	0.92
RUS	479.18	104.07	463.86	91.72	462.99	101.25	-0.93	0.97	-0.95	0.97	-0.94	0.96
SWE	509.15	94.52	515.36	92.78	510.38	94.76	0.41	0.85	0.42	0.84	0.43	0.84
UK	526.50	92.93	522.00	100.58	525.19	99.05	0.25	0.89	0.24	0.88	0.23	0.88
USA	484.60	97.52	496.19	102.46	490.41	100.36	0.23	1.04	0.22	1.05	0.22	1.05

Table 1 gives descriptive statistics about achievement (*SCORE*) and socio-economic status index (*SES*). As stated in section 1, it is wrong to assume that the average endowment as well as its distribution is the same among countries. A rapid look at our data suggests that countries represented in PISA display diverging *SES* patterns. Average socio-economic profile compared to international average (ie. *SES.j-SES.*.) is much lower in Brazil, Mexico or Russia than in Nordic countries like Iceland (ISL), Norway or Sweden (Graph 1). The same is true of distribution as captured by the standard deviation. It is much higher in Mexico, Brazil or the USA than in Austria (AUT) or Japan (JPN) (Graph 2).

Graph 1 : Socio-Economic Status (SES). Difference to the international mean. Average by country based on the sample of students who took the sciences test.



Graph 2 : Socio-Economic Status (SES).Difference to the international mean. **Standard deviation** by country based on the sample of students who took the sciences test.

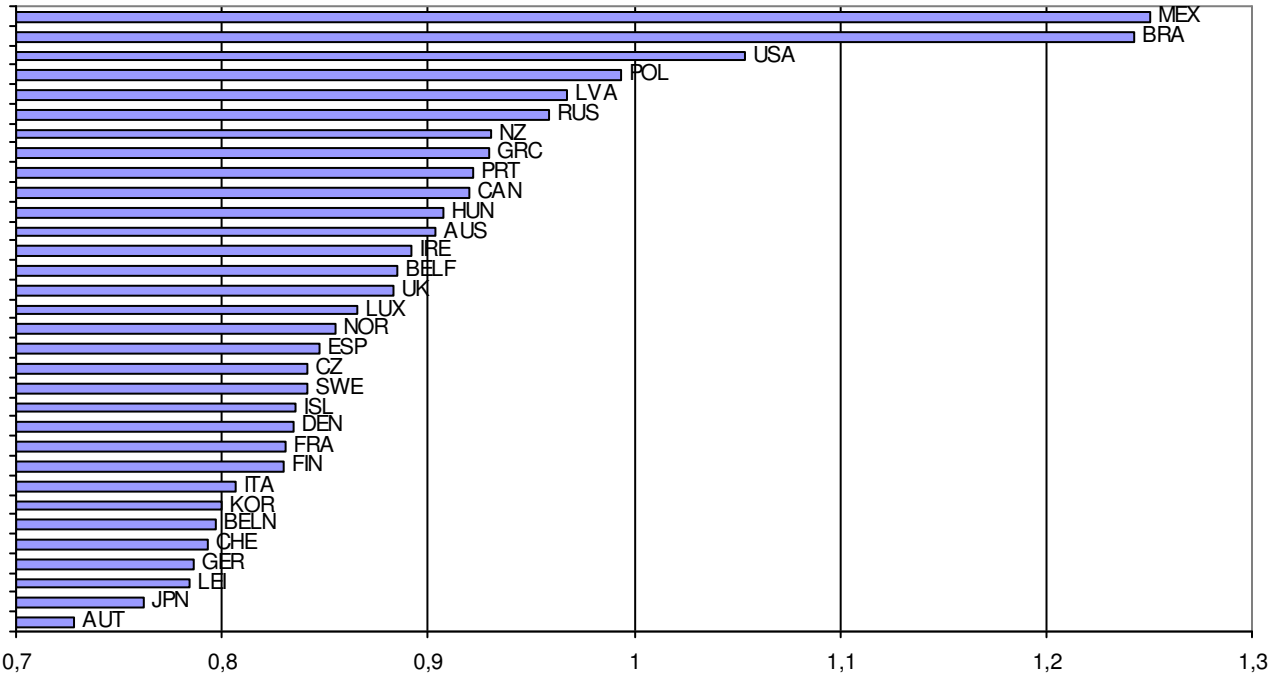


Table 2 contains descriptive information about tracking and grade-repetition. To capture the importance of tracking in each country examined here, we constructed a dummy variable (*VOC*) equal to 1 if student was attending a vocational or pre-vocational program and equal to 0 if not. Table 2 simply report frequencies by topic and by country.

Table 3 reports the same kind of information about the grade attended by students. Most likely due to diverging policies as regards to grade-repetition, students' distribution between grade can be i) totally concentrated (all 15 years-olds attend the same 'normal' grade[4]) or ii) extremely dispersed (significant proportion of 15 years-olds attend 'below-normal' grades).

[4] We use modal grade as reference (grade 10 in most countries).

Table 2 – The Importance of Tracking. Percentage of pupils attending vocational or prevocational programs. Breakdown by topic and countries**.**

Country	Math	Read	Scie
AUS	22.49	22.68	22.41
AUT	43.26	43.65	43.54
BELF	15.77	15.90	15.30
BELN	21.26	19.72	21.10
BRA	0.00	0.00	0.00
CAN	0.00	0.00	0.00
CHE	2.21	2.13	1.94
CZ	15.95	16.46	16.17
DEN	0.25	0.26	0.34
ESP	0.00	0.02	0.00
FIN	0.00	0.00	0.00
FRA	9.24	9.37	8.83
GER	1.94	1.95	2.03
GRC	27.02	27.23	27.42
HUN	29.15	29.51	29.39
IRE	1.88	1.45	1.17
ISL	0.00	0.00	0.00
ITA	0.07	0.08	0.11
JPN	25.55	25.80	25.98
KOR	35.21	35.31	35.07
LEI	0.57	0.32	0.00
LUX	17.82	18.14	18.05
LVA	50.81	49.96	49.65
MEX	38.45	38.89	39.32
NOR	0.00	0.00	0.00
NZ	0.00	0.00	0.00
POL	68.32	67.71	66.96
PRT	4.32	4.43	4.47
RUS	20.38	20.07	19.63
SWE	0.00	0.00	0.00
UK	70.84	71.06	71.00
USA	6.56	5.95	5.78

Table 3 – Lagging behind . Percentage of pupils attending a grade inferior the most frequent (modal) grade. Breakdown by topic and country

Country	Math	Read	Scie
AUS	7.59	6.99	6.71
AUT	49.77	49.19	48.56
BELF	41.45	41.01	42.15
BELN	25.92	24.55	25.5
BRA	59	58.94	24.21
CAN	20.17	20.16	20.25
CHE	15.84	15.84	15.51
CZ	43.41	42.39	43.76
DEN	8.14	8.6	8.31
ESP	28.06	27.24	28
FIN	10.91	10.96	11.29
FRA	46.13	45.97	45.83
GER	15.97	15.63	15.9
GRC	4.84	4.64	4.78
HUN	6.65	4.26	6.5
IRE	3.95	3.94	3.98
ISL	1.28	1.63	1.56
ITA	17.29	17.58	17.39
JPN	0	0	0
KOR	1.26	1.3	1.31
LEI	18.86	18.79	18.75
LUX	9.81	19.33	19.13
LVA	44.72	44.8	44.55
MEX	44.29	44.3	44.27
NOR	1.69	1.9	2.43
NZ	7.71	7.83	8.38
POL	0	0	0
PRT	44.72	44.23	44
RUS	26.62	26.92	27.29
SWE	2.88	2.88	2.74
UK	34.05	33.82	33.75
USA	43.23	42.2	41.76

Examination of table 2 and table 3 suggests that countries diverge dramatically as regards to grouping practices. Although we haven't yet looked at inter-school segregation, simply examining distributions of students by grade and track reveals the extreme divergence of education policies as to student grouping arrangements. In Nordic countries most, if not all, students attend the same grade and follow a general, (apparently) non-differentiated program. At the other end of the spectrum, one finds countries/regions like France (FRA), French-Speaking Belgium (BELF) or Austria (AUT) where proportions of students attending a below-the-normal grade are close to 50%.

Finally, table 4 gives an idea about the propensity of countries to put low and high achievers in different schools (i.e. inter-school segregation). It simply corresponds at the standard deviation of school mean scores. And once again, this table suggests significant differences across countries, with some strong correlation between topics inside each country.

3. Results & comments

Tables 5 & 6 contain our main results. Table 5 clearly suggests the lack of correlation between effectiveness defined as the (adjusted) mean score and tracking alone (column 1), tracking + grade repetition (column 2) and tracking + grade-repetition + inter-school segregation (column 3). This result holds for math, reading and sciences.

Table 5 – Adjusted measure of *effectiveness* (mean score) regressed on percentage of total variance explained by tracking, grade repetition and inter-school segregation. Breakdown by topic.

		Effectiveness as mean score		
Topic		Tracking	Tracking + grade repetition	Tracking + grade repetition + Interschool segregation
Math	Estimate	1.69	-0.04	0.20
	Probt	*0.0864*	*0.9559*	*0.7056*
	R^2	0.09	0.00	0.00
Read	Estimate	0.76	-0.30	-0.48
	Probt	*0.2178*	*0.4800*	*0.1215*
	R^2	0.05	0.02	0.08
Scie	Estimate	1.73	0.22	0.03
	Probt	*0.0610*	*0.7400*	*0.9577*
	R^2	0.11	0.00	0.00

* significant at 5%
** significant at 1%

Table 6 – Adjusted measures of *inequality* regressed on % of total variance explained by tracking, grade repetition and inter-school segregation. Breakdown by topic.

		Inequality as Interdecile range (9°decile/1°decile)			Inequality as Interquartile range (3° quartile/1°quartile			Inequality Standard deviation		
Topic		Tracking	Tracking + grade repetition	Tracking + grade repetition + Interschool segregation	Tracking	Tracking + grade repetition	Tracking + grade repetition + Interschool segregation	Tracking	Tracking + grade repetition	Tracking + grade repetition + Interschool segregation
Math	Estimate	0.47	0.25	**0.72****	0.28	0.16	**0.42****	0.16	0.07	**0.27****
	Probt	*0.3619*	*0.4901*	*0.0041*	*0.2529*	*0.3385*	*0.0003*	*0.3908*	*0.5605*	*0.0025*
	R^2	0.03	0.02	0.24	0.04	0.03	0.36	0.02	0.01	0.27
Read	Estimate	-0.20	-0.33	-0.14	-0.07	-0.14	-0.09	-0.08	-0.15	-0.08
	Probt	*0.6439*	*0.2656*	*0.5329*	*0.7875*	*0.3957*	*0.4560*	*0.6542*	*0.1933*	*0.3785*
	R^2	0.01	0.04	0.01	0.00	0.02	0.02	0.01	0.06	0.03
Scie	Estimate	0.04	0.14	0.36	-0.05	0.10	0.26	0.04	0.06	0.15
	Probt	*0.9454*	*0.6944*	*0.2159*	*0.8481*	*0.5912*	*0.0702*	*0.8141*	*0.6413*	*0.1395*
	R^2	0.00	0.01	0.05	0.00	0.01	0.11	0.00	0.01	0.07

* significant at 5%
** significant at 1%

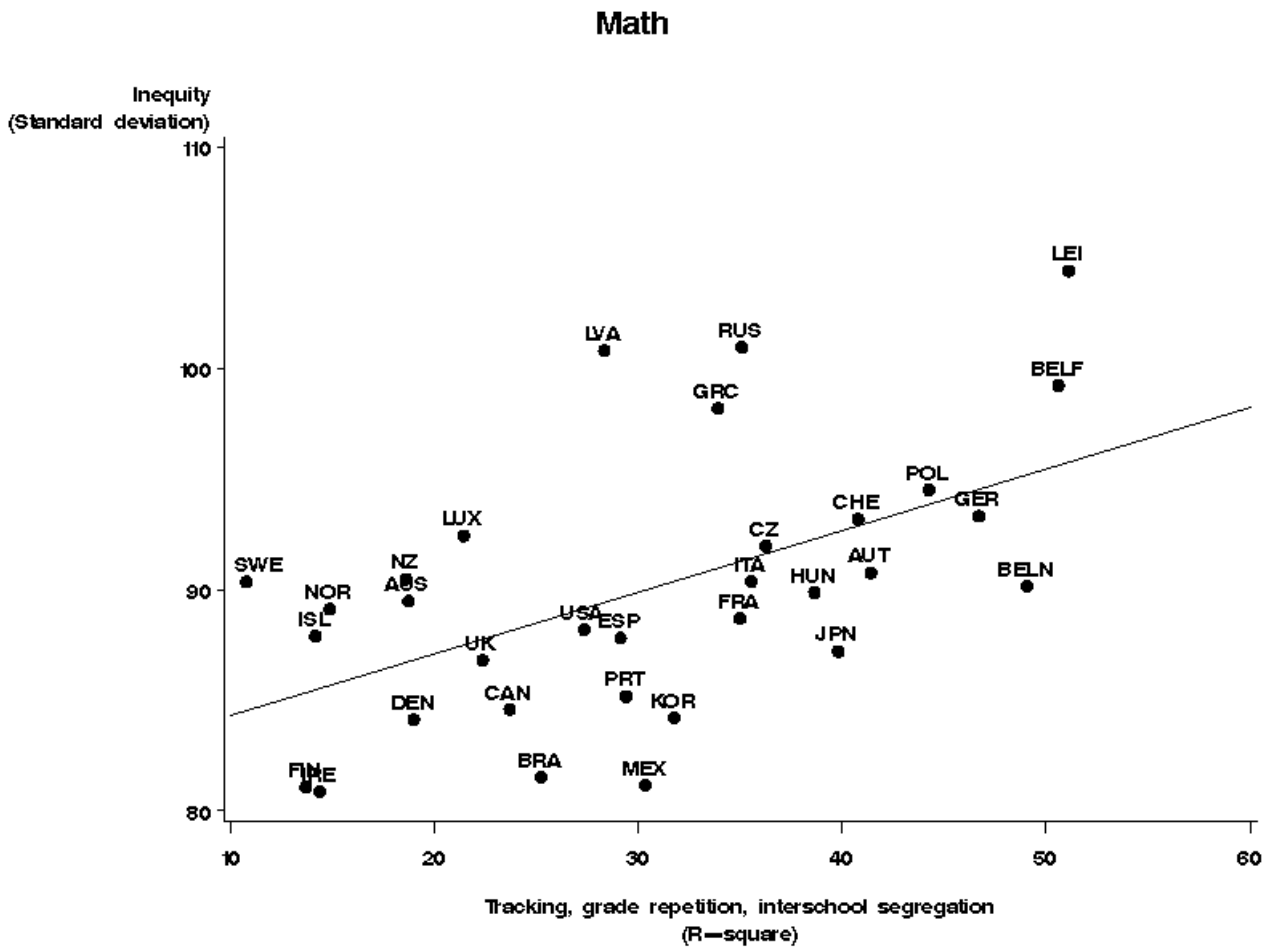
As regards to inequality (table 6), we find some robust and positive impact of segregation; but for math only (see graph 3 for visualisation) and only for the marginal gain in explained variance generated by the addition of a school fixed-effect in equation (3). Coefficients and *pvalues* reported in columns 1 & 2 of table 6 also suggest that nor tracking nor tracking + grade repetition reliably predicts the level of inequality.

In brief, these results indicate that ability grouping -- be it through track assignment, grade segregation via grade repetition sanctions, or inter-school segregation -- does not systematically predict educational performance. None of our results supports the view that effectiveness (mean score) is affected by the intensity of ability grouping. And the intensity of inequality (dispersion of scores among students) is also hard to predict. It is only for math that we have some piece of evidence suggesting that inter-school segregation (but not tracking or grade repetition) leads to more inequality.

These results should be considered with the usual reservations. They are based on a definition of ability segregation that completely ignores the possibility of inter-classroom segregation. This is certainly a shortfall as classroom formation based on actual or perceived ability of students is commonplace across most educational systems. This, our results tend to indicate that it could be abusive to systematically see in ability-grouping policies the main source of poor educational performance.

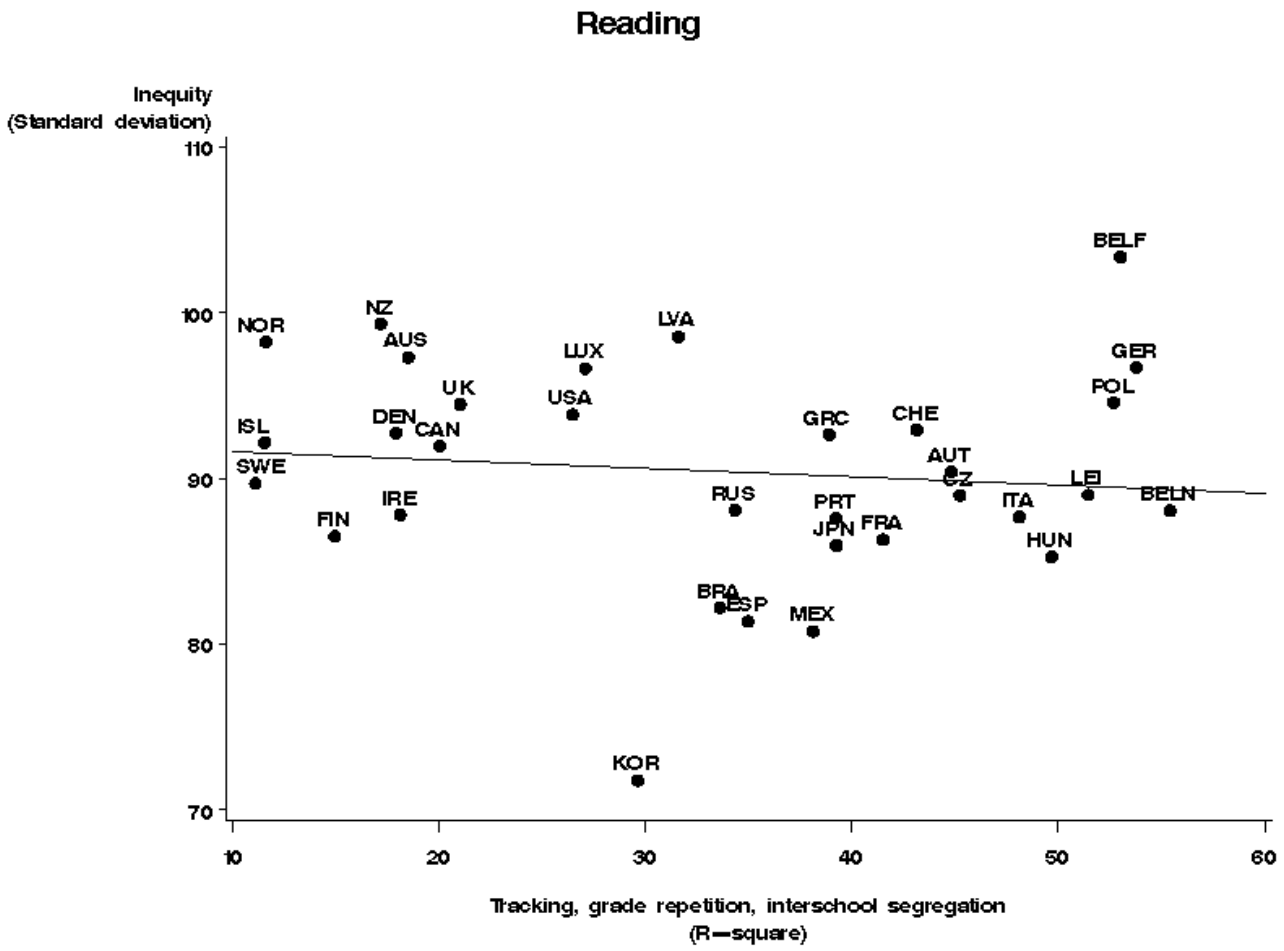
As to inequality in particular, we would suggest the need of further research, using international data, to improve assessing of the role of ability segregation. But we would also advise to integrate other determinants of achievment inequality into analytical frameworks, like the role of centralisation/decentralisation of curricula and evaluation criteria (Woesssman, 2000).

Graph 3 – Inequality performance and ability grouping - Math



Australia (AUS), Austria (AUT), French-Speaking Belgium (BELF), Dutch-Speaking Belgium (BELN), Brazil (BRA), Canada (CAN), Switzerland (CHE), Czech Republic (CZ), Denmark (DEN), Spain (ESP), Finland (FIN), France (FRA), Germany (GER), Greece (GRC), Hungary (HUN), Ireland (IRE), Iceland (ISL), Italy (ITA), Japan (JPN), South Korea (KOR), Liechtenstein (LEI), Luxembourg (LUX), Latvia (LVA), Mexico (MEX), Norway (NOR), New-Zealand (NZ), Poland (POL), Portugal (PRT), Russia (RUS), Sweden (SWE), the United Kingdom (UK), the United States (USA).

Graph 4 – Inequality performance and ability grouping- Reading



Bibliography

Bénabou, R.(1996), Equity and effectiveness in Human Capital Investment: The Local Connection, *Review of Economic Studies*, 63(2), 237-264.

Gamoran, A. & Nystrand, M. (1994), Tracking, Instruction and Achievement, *International Journal of Educational Research*, 21(5), 217-231.

Dupriez, V., Vandenberghe, V. & Zachary, M-D. (2001), Is There an Effectiveness-Equity Trade-off? A cross-country comparison using TIMSS test , in: Cochrane, Hutmacher, Botany (Eds), *In Pursuit of Equity*, Ed. Kluwers, the Netherlands.

Woessmann, L. (2000), Schooling resources, educational institutions, and student performance: the international evidence, *Kiel Working Paper,* n°983 (December), Kiel Institute of World Economics, Kiel.

Cahiers de Recherche du GIRSEF

Déjà Parus :

Thiéry F., Zachary M-D., De Villé Ph., Vandenberghe V. (1999) Enseignement initial : les enjeux du développement de l'enseignement supérieur sur fond de crise de l'enseignement secondaire qualifiant, *Les cahiers de Recherche du GIRSEF*, n° 1.

Conter B., Maroy C., Urger F. (1999) Le développement de la formation professionnelle continue en Belgique francophone, *Les cahiers de Recherche du GIRSEF*, n° 2.

Vandenberghe V. (1999) Regard rétrospectif sur la dynamique des dépenses d'enseignement en Communauté française de Belgique :1988-1998, *Les cahiers de Recherche du GIRSEF*, n° 3.

Dupriez V., Maroy C. (1999) Politiques scolaires et coordination de l'action, *Les cahiers de Recherche du GIRSEF*, n° 4.

Doray, P. (2000) Les articulations entre formation professionnelle initiale et formation continue au Québec :quelques pistes de travail, *Les cahiers de Recherche du GIRSEF*, n° 5.

Casalfiore S. (2000) L'activité des enseignants en classe. Contribution à la compréhension de la réalité professionnelle des enseignants, *Les cahiers de Recherche du GIRSEF,* n°*6.*

Vandenberghe V. et Zachary M-D. (2000) Efficacité-équité dans l'enseignement secondaire de la Communauté Wallonie Bruxelles : essai d'évaluation dans le cadre d'une comparaison internationale, *Les cahiers de Recherche du GIRSEF,* n°7.

Vandenberghe V. (2000) Enseignement et iniquité : singularités de la question en Communauté Wallonie-Bruxelles, *Les cahiers de Recherche du GIRSEF,* n°8.

Guyot J.-L., Bonami M. (2000) Modes de structuration du travail professoral et logiques disciplinaires à l'Université, *Les cahiers de Recherche du GIRSEF,* n°9.

Cattonar B. (2001) Les identités professionnelles enseignantes. Ebauche d'un cadre d'analyse. *Les cahiers de Recherche du GIRSEF,* n°10.

Maroy C. et Doray, P. (2001) La construction des relations écoles / entreprises. Le cas de la formation en alternance en Communauté Française de Belgique et au Québec, *Les cahiers de Recherche du GIRSEF,* n°11.

Maroy C. (2001) Le modèle du praticien réflexif à l'épreuve de l'enquête, *Les cahiers de Recherche du GIRSEF,* n°12.

Mangez E. (2002) Régulation et complexité des rapports familles – écoles, *Les cahiers de Recherche du GIRSEF,* n°13.

Waltenberg F. D. (2002) Polarisation et appariements sélectifs des individus. Etat de la question , *Les cahiers de Recherche du GIRSEF,* n°14.

Si vous souhaitez obtenir d'autres numéros de ces cahiers, vous pouvez les obtenir au secrétariat du GIRSEF au prix unitaire de 6 €, Place Montesquieu 1 bte 14, B-1348 Louvain-la-Neuve, Tél : 32-10-472066, Fax : 32-10-472400, email : girsef@anso.ucl.ac.be

Un résumé des textes parus dans ces cahiers est disponible sur le Web à l'adresse suivante : http://www.girsef.ucl.ac.be/cahiers.html.

Cahiers de Recherche du GIRSEF (suite)

Waltenberg F. D. et Vandenberghe V. (2002) Etat des lieux de mobilité des élèves en cours de scolarité primaire en Communauté française Wallonie – Bruxelles. Une analyse économique et quantitative, *Les cahiers de Recherche du GIRSEF,* n°15.

Casalfiore S. (2002) Les petits conflits quotidiens dans les classes de l'enseignement secondaire. I. Nature et sens des transgressions sociales à l'origine des conflits dans la dyade enseignant-élève, *Les cahiers de Recherche du GIRSEF,* n°16

De Villé Ph. (2002) Equal opportunity in the educational system and the ethics of responsibilty, *Les cahiers de Recherche du GIRSEF,* n°17

Maroy M. et Cattonar B. (2002) Professionnalisation ou déprofessionnalisation des enseignants ? Le cas de la Communauté française de Belgique. *Les cahiers de Recherche du GIRSEF,* n°18.

Dauphin N. et Verhoeven M. (2002) La mobilité scolaire au cœur des transformations du système scolaire. *Les cahiers de Recherche du GIRSEF,* n°19.

Casalfiore S. (2003) Les petits conflits quotidiens dans les classes de l'enseignement secondaire. II. Nature des stratégies de résolution, *Les cahiers de Recherche du GIRSEF,* n°20

Casalfiore S. (2003) Les petits conflits quotidiens dans les classes de l'enseignement secondaire. III. Conception de l'autorité chez les élèves, *Les cahiers de Recherche du GIRSEF,* n°21

Vandenberghe V. (2003) Un enseignement secondaire technique et professionnel (dé)valorisé ?, *Les cahiers de Recherche du GIRSEF,* n°22

Dupriez V. (2003) La coordination du travail dans les établissements scolaires: les différentes voies de construction de l'accord, *Les cahiers de Recherche du GIRSEF,* n°23

Dupriez V. et Draelants H. (2003) Classes homogènes versus classes hétérogènes : les apports de la recherche à l'analyse de la problématique, *Les cahiers de Recherche du GIRSEF,* n°24

Letor C. et Vandenberghe V. (2003) L'accès aux compétences est-il plus (ini)équitable que l'accès aux savoirs traditionnels ?, *Les cahiers de Recherche du GIRSEF,* n°25

Galand B. et Gillet M.-P. (2004) Le rôle du comportement de la direction dans l'engagement professionnel des enseignants, *Les cahiers de Recherche du GIRSEF,* n°26

Dupriez V. et Vandenberghe V. (2004) L'école en Communauté française de Belgique : de quelle inégalité parlons-nous? *Les cahiers de Recherche en Education et Formation,* n°27