

SEN'S Indicator, a tool for measuring the equity of educational systems.

A comparison of european countries

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SEN's approach (1976, 1992, ...)

- Permits you to measure the equity by the proportion of individuals under a threshold
- Initially, SEN's Indicator (1976) was built to measure the rate of poverty. Its principal advantage is that it considers three dimensions simultaneously.

The three dimensions in SEN's Indicator:

- 1 – The rate of poverty
 - 2 – The intensity of poverty
 - 3 – The inequality of income distribution among the poor
- ⇒ This indicator gives more information than just the percentage of individuals under a threshold

SEN's Indicator in the educational systems

- For the work of GERESE, SEN's Indicator has been adapted for educational systems. We have built two indicators:
 - an indicator of weakness of the students,
 - Another for the excellence of the students

The indicator of scholastic weakness

- is given by the following formula :

$$S = T(I + (1 - I)G)$$

With **S**: Sen's Indicator

T number of weakest students

I Intensity of weakness

G dispersion of the results for these weakest students

⇒ This indicator of scholastic weakness allows you to focus on the weakest students, while simultaneously taking account of the percentage of students in this group (T), the average gap between this group and the minimum acceptable level (I), and the dispersion of results in this group (G)

The indicator of scholastic excellence

- Is given by the same formula, but deals only with the best students

$$S = T(I + (1 - I)G)$$

With T: number of excellent students

I : Intensity of excellence

G : dispersion among the results of best students

This indicator grows with the number of excellent students, the intensity of excellence, and the dispersion of excellence.

In the same fashion, the indicator of weakness grows with the percentage of weak students, the intensity of weakness and the dispersion of results for these weak students

These two indicators are applied to different european educational systems

- The two previous indicators were built using data from PISA 2000.
- Our work deals with the three disciplines evaluated in PISA (mathematics, reading, sciences)

Résultats for the indicator of scholastic weakness in reading

country	SEN's indicator	country	SEN's indicator	country	SEN's indicator
Belgium	1.3	France	1.1	Austria	1.3
Denmark	1.3	Ireland	0.7	Portugal	1.8
Germany	1.6	Italy	1.2	Finland	0.4
Greece	2.0	Luxemb.	3.2	Sweden	0.8
Spain	1.0	Holland	0.5	England	0.9
European Average : 1.2					

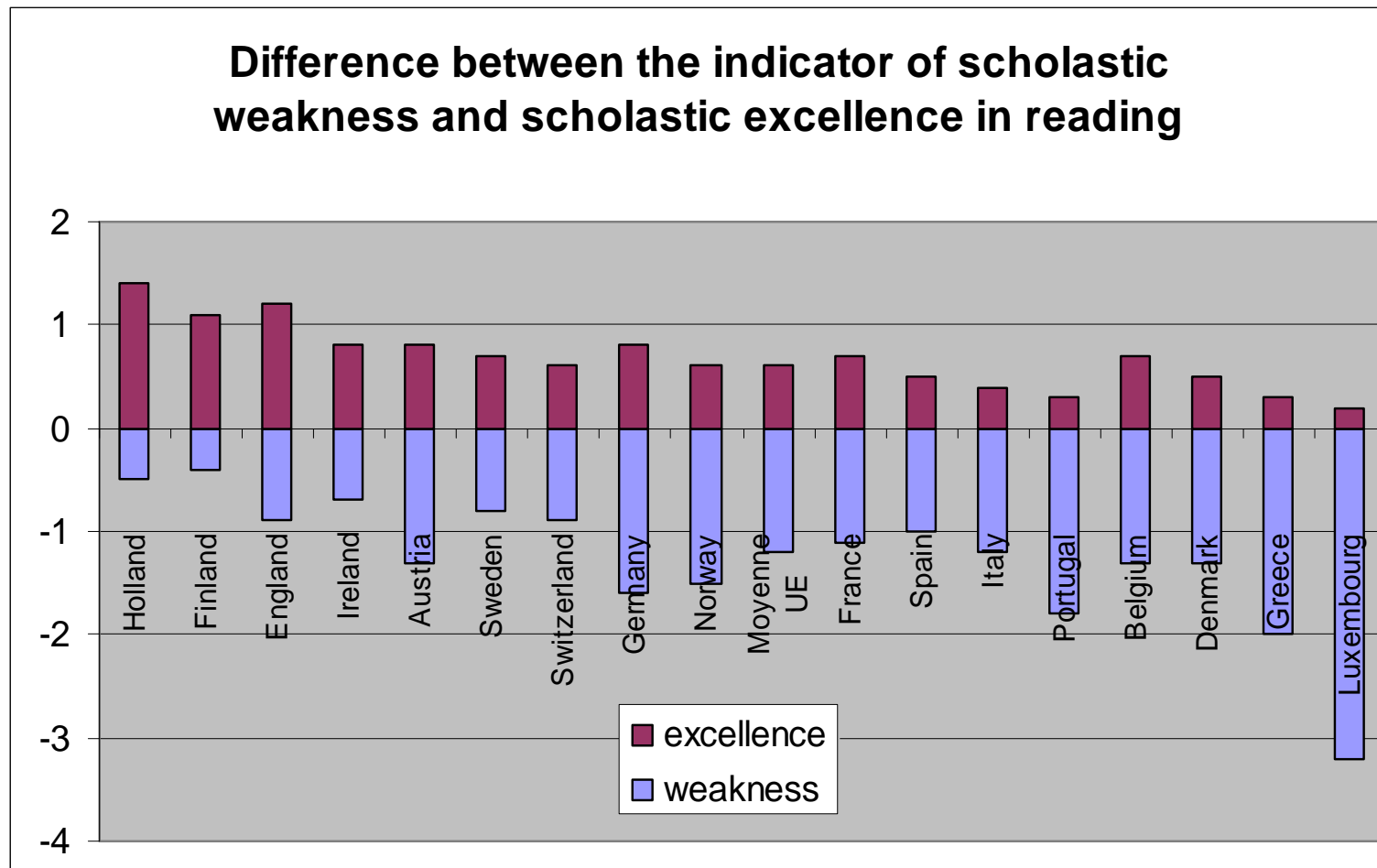
Results for the indicator of scholastic excellence in reading

country	SEN's indicator	country	SEN's indicator	country	SEN's indicator
Belgium	0.9	France	0.6	Austria	0.6
Denmark	0.6	Ireland	1.1	Portugal	0.4
Germany	0.8	Italy	0.4	Finland	1.3
Greece	0.3	Luxemb.	0.2	Sweden	0.8
Spain	0.3	Holland	1.3	England	1.2
European average : 0.7					

Measuring equity of educational systems from indicators of scholastic weakness and scholastic excellence

- From these two indicators, the difference between the two groups of students can be measured.
- This third indicator is the sum of the two previous indicators.

Difference between the indicators of scholastic weakness and scholastic excellence in reading



Difference between the indicators of scholastic weakness and scholastic excellence in reading(2)

- The european average, measuring the difference between the best and the weakest is 1.9.
- Some countries (*Finland, Spain, Italy, Sweden*) showed a relatively small difference between the strongest and the weakest.
- This difference is biggest in the following countries (*Belgium, Germany, Greece, Luxembourg*). This value could be due to a high indicator of weakness (the greek system for example), or due to a high indicator of excellence (such as Germany)

Difference between the indicators of scholastic weakness and scholastic excellence in reading(3)

- Educational systems which showed a high level of excellence and a low level of weakness (such as Finland or Sweden) don't seem, according to the indicator, to be particularly elitist. On the contrary, the difference between the weakest and the strongest is lower than the European average.