

Measuring the quality and labor market results in education – Case of Hungary

DRAFT ANALYSIS

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The document offers a brief overview of the indicators used for measuring the quality (test scores, labor market and other results and characteristics) of particular schools and/or their pupils and students in Hungary. Further, it includes information on how the results impact the financing of particular schools. It also offers an overview of tools informing the public about the results with major focus on published school reports, and previous school rankings. Finally, the document lists some of key lessons learned in measuring the quality in education as well as some of key challenges in this respect discussed in the country.

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¹ See <http://www.ineko.sk/projekty/visegrad-fund>.

Summary

Hungary has one of the most developed standardized testing schemes in Central Eastern Europe (see OECD 2010). The National Assessment of Basic Competencies (NABC) surveys the full cohorts of 6th, 8th and 10th graders testing their reading and mathematical literacy and asking an extensive set of questions about their family status. While the NABC is low stakes for the students it is medium stakes for schools as no financial incentives are linked to it but school, local and national level results are publicized annually which might press some schools to perform better.

There are several other datasets which could, in principle, offers statistics of schools that relate to quality. The Public Education Information System (Közoktatási Információs Rendszer – KIRstat) collects extensive set of information school characteristics: number of teachers, students, physical infrastructure, teacher qualifications and more. This administrative data is also used to determine the available financial resources to schools, as school funding has been linked to the number of students before 2013 and now it is linked to the number of teachers (with fixed teacher/student ratio).

Previously the national school league tables were based on the Tertiary enrollment database (Felsőoktatási felvételi adatbázis - Felvi) (see Neuwirth and Horn 2007) but due to heavy criticism from the schools and the education profession, and to decreasing funding these tables are now prepared by for profit media only.

While in principle the results of the maturity exam and the secondary enrollment exam (Secondary enrollment information - Középiskolai Felvételi Információs Rendszer, KiFIR) system can be used to indicate the quality of schools, since these exams are high stakes and tests and not standardized across years, it is rarely used for this purpose.

There has also been instances of national Graduate Career Tracking (Diplomás pályakövetés), but with rather low and non-representative response rates, the results from these surveys are rarely used for quality measures.

Overview of the main sources of information on school quality

The National Assessment of Basic Competencies (NABC)²

The NABC³ is a standard based assessment designed similarly to the OECD PISA survey, but conducted annually in May. It measures reading and mathematical literacy of the 6th, 8th and 10th grade students and it is standardized to a mean of 1500 with standard deviation of 200. The mathematics and the reading scores are standardized not only within but also across years. The average score of 6th grade students in 2008 was 1500 (both in math and reading) and each cohort and class is measured to this 2008/6th grade cohort. For instance if the average mathematics score of the 6th grade students in 2010 is 1550, this means that this cohort's average mathematical literacy is quarter of a standard deviation higher than that of the two year older cohort. Similarly, one can compare the scores across years within cohorts.

Table 1 shows who and when was measured within the NABC survey. There are several explicit goals of this assessment. First is to provide more detailed and more frequent feedback for the educational policy than the international surveys. The second is to offer a tool for the school providers and schools themselves to improve. The third goal is to set the grounds for a future accountability system and provide higher transparency. In addition to all this, it offers invaluable data for the researchers to address education related puzzles. Unfortunately up until 2008 the database could only be analyzed on a cross sectional basis, because it had not contained permanent student level identification numbers. From 2008 onwards the biannual datasets are linked on the student level, thus from 2010 more detailed analyses are possible.

Table 1 – The official NABC database

	6th grade	8th grade	10th grade
2003	20 students from every school	0	20 students from each track from each school
2004	20 students from every school	20 students from every school	20 students from each track from each school
2006	every student from a sample of 195 schools	full cohort	30 students from each track from each teaching site
2007	every student from a sample of 200 schools	full cohort	30 students from each track from each teaching site
2008*	full cohort	full cohort	full cohort
2009*	full cohort	full cohort	full cohort
2010*	full cohort	full cohort	full cohort
2011*	full cohort	full cohort	full cohort
2012*	full cohort	full cohort	full cohort
2013*	full cohort	full cohort	full cohort
2014*	full cohort	full cohort	full cohort

* Permanent individual identification numbers are available

² This chapter was adopted from Horn (2013)

³ See the official website (http://www.oktatas.hu/kozneveles/meresek/kompetenciameres/alt_leiras) or Hermann and Molnár (2008) for Hungarian language descriptions of the assessment. A short English description of the system can be found in OECD (2010).

In addition to the mathematics and literacy test scores the database contains extensive information on the student background and on the school site. These questionnaires resemble that of the PISA survey and cover a wide variety of questions about parental education, employment, wealth and information on students' previous education and aspirations.

The results of the NABC are made public approximately one year after the assessment. Each school location, each school and each education provider receives a standardized report via mail, while these reports are also put online.⁴ Only the student (and her/his parents) and the school can access the individual results, but the anonymized database of the NABC is available for research.

The reports consist of several standardized indicators of school quality including the mean, standard deviation, confidence intervals of the students' test-scores; their comparison to the national measures and to measures of other similar types of schools or settlements. Besides these basic statistics, information on the class level is also available, as well as more complex measures of schools quality. These more complex measures include the expected test-score value of the school, using the students' previous test scores, as well as a more complex value-added measure which corrects for individual family background characteristics and other individual and school level characteristics besides the previous test-scores.

While the NABC might be important for the schools as they are made public and Hungary has a long tradition in free school-choice, no high-stakes measures are linked to the assessment. The progression of students must not depend on the results (especially since the results of the assessment are received only a year after), but schools also have no high-stakes on this testing: no financing or personnel decisions should be made using this. Note, however, that if a school performs below a very low level of expected performance⁵ it has to submit an administrative action plan to its provider. Also if a school is three years below this level the ministry should assign a committee to investigate the reasons for the low performance. (Note that this has not happened during the last decade.)

Public Education Information System (Közoktatási Információs Rendszer – KIRstat)

The KIRstat collects extensive information the schools and school programs. Each school must fill an extensive questionnaire. This includes questions on the number and distribution of students (age, gender, class, program type etc.), teachers (age, qualification etc.), infrastructure (number of classrooms, gyms, computers etc.) programs (vocational, language, specialized or advanced courses) and more. This database provides the basis for the national education statistics and also for the financing of the schools. While previous to 2013 student were financed via per-student lump-sum grants (aka. "normative" financing) post-2013 school receive their "normative" grant based on the number of teachers (while the student/teacher ratio is fixed).

⁴ <https://www.kir.hu/okmfit/>

⁵ Over 25% of students should perform below level 2, meaning they are quasi illiterate.

Tertiary enrollment database and secondary enrollment information

The Tertiary enrollment database (Felsőoktatási felvételi adatbázis - Felvi) provides information about the secondary to tertiary level transitions while the Secondary enrollment information (Középiskolai Felvételi Információs Rendszer, KiFIR) collects the primary to secondary level transitions. These two datasets offer the possibility of providing information on the supply as well as the side of the secondary and tertiary level enrollment. In principle school-continuation rates for both the primary and the secondary schools could be calculated, which could act as a quality indicator for the schools. In practice these indicators were only published for secondary schools until 2006 (for the latest issue see Neuwirth and Horn 2007). Within these school-league tables the tertiary level enrollment rates as well as other indicators (application rates, number of language exams passed, number of students in academic Olympics) were published. These indicators received heavy critique both from the teachers (or schools) side as well as from the education profession, due to their obviously biased nature.⁶ The reports were later, quasi, substituted by the official NABC reports, which are considered much more reliable.⁷ Nevertheless still today the for-profit media issues the “Top secondary schools” lists, which are very similar to the reports compiled previously by Gábor Neuwirth, but usually report only the top 50 or 100 schools.

Graduate Career Tracking (Diplomás pályakövetés)

During the last half a decade the ministry has tried to set up a Graduate Career Tracking system (Diplomás Pályakövetés Rendszer) in order to assess the school-to-work transition of tertiary graduates. This system, while provides important information on the tertiary level institutions, in itself is not quite suitable to assess the quality of the institutions. The most important problem, in this respect, is the non-response rate and the biased representation of the different fields of studies. Nevertheless, there have been attempts to evaluate the quality of the different fields of studies and the quality of the different institutions (e.g. Varga 2010).

Some reports on school quality

As mentioned above, the National Assessment of Basic competencies provides school, provider and national level reports on the level of mathematical and reading literacy, as well as several other statistics of the schools. These reports are published online every year in the spring.⁸

Besides these public reports the for-profit media offers top-lists on schools. These lists are usually based on information about tertiary enrollment ratios. These can be considered as the continuation of the officially prepared school league tables. The National Institute for Public Education (today the Institute for Educational Research and Development) has published an annual list of schools and their different statistics, such as: tertiary enrollment ratio, ratio of tertiary applicants, ratio of successful applicants,

⁶ They cannot control for the selectivity of the schools. Schools on the top of the school league tables tend to be the most selective (with the best students cream-skimmed), and thus these tables also facilitate the selectivity of the system.

⁷ Naturally NABC reports are also very prone to selection bias (Horn 2015), but no school list is available. The reports are provided in a pdf file, thus only a limited number of them can be compared at a time.

⁸ see <https://www.kir.hu/okmfit/>

ratio of high level foreign language certificates, success rates on advanced level academic tournaments etc. (Neuwirth 2002, 2003, 2004, 2005, 2006; Neuwirth and Horn 2007).

Another important series of reports were the Reports on the Hungarian Public Education (Jelentés a magyar Közoktatásról), which were edited volumes of somewhat standardized analyses on the most important issues on the public education. These included education politics, economic and social environment, education governance, education financing, curriculum, school life, teachers, quality of schools, equality and special needs. The chapters all consisted of a longer analysis of the current trends as well as tables on the most important statistics in the given area. The reports were published for 1995, 1997, 2000, 2003, 2006 and 2010 (Halász and Lannert 1995, 1997, 2000, 2003, 2006; Balázs, Kocsis, and Vágó 2011).

The most current report that related to school quality is the System of Indicators on the Public Education 2015 (A közoktatás indikátorrendszere 2015) (Varga et al. 2015). There are four clusters of indicators in this volume: “context”, “resources”, “process” and “outcome”. Within the outcome indicators a sub chapter is devoted to the “results within” while another to the “results outside” the system. The first deals with indicators such as the ratio of high and low performers, or the continuation rates among levels. The second lists indicators such as the ratio of employed graduates or the median income of the differently educated. A revision of this report is under process.

Information about if and how the results impact the financing of particular schools

There is no direct impact of the quality results on financing the primary and secondary schools. Both categories are financed based on a “normative” which is a specified financial amount per teacher. Thus, the total subsidy from the state is calculated as a “normative” given for a particular school category (i.e. primary school, grammar school, bilingual school, vocational school, etc.) multiplied by the number of teachers (while the teacher student ratio is fixed within an interval). Indirectly, the school with better results may be more successful in attracting more pupils and thus would be able to expand and thus receive a higher subsidy.

In tertiary education there are two main criteria of funding: (1) number of students, (2) scientific, research and/or artistic results. As opposed to primary and secondary education, part of funding (approximately one half) is directly dependent on the scientific, research and/or artistic results. However, the criteria for evaluating these results have not allowed for major distinction between high-quality and medium results which has led to rather weak impact on quality. Indirectly, the schools may receive more money for attracting more students. Note also that there are two types of student funding: state funded (tuition waivers) and self-funded (tuition paying). While the institutions receive the same amount after both of these groups, there is a cap on the state-funded group but no strict limit on the tuition paying students.

Current challenges and lessons learned

The Hungarian public education system is in constant reform. Since 2013 the system has been changing greatly: the most important change was the reform of education providers. The previously highly decentralized system was centralized, and now it is being de-centralized, again.⁹ Thus quality issues are currently of secondary importance (at best).

Nevertheless the development of the information on school quality during the last decade or so can be a success story. The previously officially reported raw measures of secondary school performance lists have been substituted by a much more thorough list of information on quality. This list not only includes a value-added measure, but it is also much harder to rank the schools and thus evaluate them one dimensionally. While, apparently, these reports can also be much further improved, it is considered to be a best-practice, at least in the Central-European region.

⁹ School financing, curriculum, the supply of books and more have also changed.

References

- Balázs, Éva, Mihály Kocsis, and Irén Vágó. 2011. *Jelentés a Magyar Közoktatásról 2010*. Budapest, Hungary: Oktatókutató és Fejlesztő Intézet.
- Halász, Gábor and Judit Lannert. 1995. *Jelentés a Magyar Közoktatásról 1995*. Budapest, Hungary: Országos Közoktatási Intézet.
- Halász, Gábor and Judit Lannert. 1997. *Jelentés a Magyar Közoktatásról 1997*. Budapest, Hungary: Országos Közoktatási Intézet.
- Halász, Gábor and Judit Lannert. 2000. *Jelentés a Magyar Közoktatásról 2000*. Budapest, Hungary: Országos Közoktatási Intézet.
- Halász, Gábor and Judit Lannert. 2003. *Jelentés a Magyar Közoktatásról 2003*. Budapest, Hungary: Országos Közoktatási Intézet.
- Halász, Gábor and Judit Lannert. 2006. *Jelentés a Magyar Közoktatásról 2006*. Budapest, Hungary: Országos Közoktatási Intézet.
- Hermann, Zoltan and Tímea Laura Molnár. 2008. "Országos Kompetenciamérési adatbázis." Retrieved December 29, 2011 (<http://adatbank.mtaki.hu/files/dokum/7.pdf>).
- Horn, Daniel. 2013. "Diverging Performances: The Detrimental Effects of Early Educational Selection on Equality of Opportunity in Hungary." *Research in Social Stratification and Mobility*.
- Horn, Dániel. 2015. "Az Iskolai Hozzáadott Érték Mérése." Pp. 63–90 in *Mit mér a műszer?*. Budapest: Oktatókutató és Fejlesztő Intézet.
- Neuwirth, Gábor. 2002. *A Középiskolai Munka Néhány Mutatója 2001*. Budapest, Hungary: Országos Közoktatási Intézet.
- Neuwirth, Gábor. 2003. *A Középiskolai Munka Néhány Mutatója 2002*. Budapest, Hungary: Országos Közoktatási Intézet.
- Neuwirth, Gábor. 2004. *A Középiskolai Munka Néhány Mutatója 2003*. Budapest, Hungary: Országos Közoktatási Intézet.
- Neuwirth, Gábor. 2005. *A Középiskolai Munka Néhány Mutatója 2004*. Budapest, Hungary: Országos Közoktatási Intézet.
- Neuwirth, Gábor. 2006. *A Középiskolai Munka Néhány Mutatója 2005*. Budapest, Hungary: Országos Közoktatási Intézet.
- Neuwirth, Gábor and Dániel Horn. 2007. *A Középiskolai Munka Néhány Mutatója 2006*. Budapest: Oktatókutató és Fejlesztő Intézet. Retrieved (<https://www.ofi.hu/tudastar/kozepiskolai-munka/kozepiskolai-munka-090617-5>).
- OECD. 2010. "OECD Review on Evaluation and Assessment Frameworks for Improving School Outcomes - Hungary Country Background Report."

- Varga, Júlia. 2010. "A Pályakezdő Diplomások Keresete, Munkaerő-Piaci Sikeressége a 2000-Es Évek Elején." P. 352 in *Diplomás Pályakövetés IV. Frissdiplomások 2010*. Budapest, Hungary: Educatio Társadalmi Szolgáltató Nonprofit Kft.
- Varga, Júlia, Tamás Hajdu, Zoltán Hermann, and Dániel Horn. 2015. *A Közoktatás Indikátorrendszere 2015*. Budapest, Hungary: MTA KRTK KTI.