Theses of Ph.D. Dissertation

Disadvantaged students in secondary and tertiary education

Disadvantaged students’ academic performance at secondary schools and their admission to higher education with regard to regional differences

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The aim of the dissertation, brief introduction of the topic

International organisations and researchers constantly focus on how the conditions and situations of disadvantaged social groups can be improved (Heyneman – Loxley 1983, OECD 2001, Polónyi 2013 etc), however comparative studies tend to encounter difficulties, since neither the literature nor the legislation provides a systematic definition for the term „disadvantaged”. In Germany law defines risk-factors (Autorengruppe Bildungsberichterstattung 2016), other countries enlist various physical or sensation-related disadvantages apart from socio-economic ones (Yekta 2010). For example, Romania identifies groups that need special attention instead of applying the category of disadvantaged (Salmi et al. 2015, Berei 2017). The broadest term refers to a group that is considered disadvantaged due to a characteristic or the lack of it (Lkhamsuren et al. 2009). Being disadvantaged is often identified with poverty, which both narrows down and enriches the definition itself (Andorka 2006, Stamm et al. 2011). However, all researchers and authors agree that education can decrease disadvantages (Sorokin 1998, Sági 2006), since individual or community investment into promoting higher qualification of these groups will lead to economic benefits in the long run (Köllö, 2009), and thus social differences can be diminished (Nonoyama-Tarumi et al. 2015). This is the reason why it is of utmost importance to explore the education and its circumstances in details.

Several researches have focused on the issues of the admission of disadvantaged groups to education, the issue of justice and equity (eg. Maiztegui et al. 2008, Aslam 2009, Varga 2015), however most of these findings highlighted that disadvantaged groups, marginal social groups do not have admission to education or in a highly limited way. Affirmative education policy consists of such laws and administrative practices, which aim at decreasing the disadvantages. The international practices detailed in the dissertation point out that the abundance of definitions regarding the phenomenon are clearly reflected in the relevant legislative, legal, educational laws, orders and documentation. Hungary can boast of a history of long decades of tackling the disadvantaged issue with the means of education policy (Kozma, 1975), moreover the core problem has reached by the expansion of the secondary and tertiary level the higher educational levels. In 2013 the law favouring disadvantaged groups has been aggravated, which has made the life of this social group more difficult according to researchers (Varga 2013).

The findings of international school-performance studies display a strong correlation with the country’s economic development (Baláázsi et al. 2012, Nonoyama-Tarumi et al. 2015). These examinations prove that a more advantageous family background correlates with
higher school-performance (Arató – Varga 2004) that is also promoted with heterogenous school-structure (Rolleston – James 2015). Among the countries participating in international performance studies Hungary stands out with its highest proportion of schooling segregation based on family background (Csapó et al. 2009), whilst those countries that aim to enhance students’ performance have intervened into their educational system and have attempted to decrease the structural differences of the schools (Balázsi – Zempléni 2004, Csapó et al. 2009). This kind of education maintains and perpetuates the differences between the social groups (Petneki 2002, Gogolin 2014).

Apart from the family background, the structure of the school, the characteristics of the teacher affect the performance of the students significantly (Felmlee – Eder 1983, Peterson 1984, Alexander – Fuller 2004). The tremendous influence of the composition of the schools’ pupils has brought forward the definition of disadvantaged school, which is defined by parental qualification and student composition (Burnet – Lampert 2011). Recent Hungarian studies have been focusing not on the pupils when looking into disadvantage characteristics but on the schools where the proportion of the disadvantaged pupils was high and evaluated the examined institutions at risk according to certain variables (Széll 2014, Bacskai 2015).

Researchers do not agree on their evaluation of the governing body of the school. Certain findings account for the higher pedagogical achievement at religious schools with a more adequate institutional climate, coherent norm-system (Coleman et al. 1966, Pusztai 2004, Opdenakker – Van Damme 2006), whilst other ones explain this phenomenon with the stricter admission selection of the religious sector (Elder – Jepsen 2014), moreover there are some researchers who claim that the social differences and segregation is perpetuated by the religious governing bodies by providing a loophole for admitting children from higher social classes (Weiβ 2012). Hungarian studies are divided concerning this issue (Barta 2009, Pusztai 2009), yet it is obvious that religious schools have been undergoing an image and structural change for 10 years, although it is not known whether these schools offer education to all social classes following their elitism in the past (Herman – Varga 2016).

International studies have been focusing on the regional inequalities of students’ performance (Sampson et al. 1999, Lauren 2009, Machin – Salvanes 2010), however most cases examined smaller areas, parts of cities or extensive international studies (PISA, TIMSS) involved comparative surveys, which resulted in few national, databases, or few published regional differences. The majority of the Hungarian studies have been conducted at regional or county level (Széll 2014, Baeskai 2015, Balázsi et al. 2016), and occasionally provide
findings for smaller areas (Garami 2014), even though it is of uttermost importance to interpret the results on a social and economic scale (Kozma 1973).

Higher education plays an important role in promoting economic development as well as in educating graduates (Kozma 2006, Polónyi 2012). Studies have pointed out that the proportion of graduates in one region depends on the facilities and number of higher educational institutes of the region (Pusztai 2009, Chudnovskaya – Kolk 2014, Hegedűs 2015). It is crucially important that the freshly graduates return to their place or region of origin, since their investment should make profits there, otherwise it will lead to loss of profit (Varga 1998). That explains why we have to explore the factors influencing the choice of higher educational institutes of the disadvantaged students. However, most studies do not include this aspect of research into disadvantaged students (Pusztai 2009, Chudnovskaya – Kolk 2014, Hegedűs 2015).

The dissertation aims to examine the differences in the result of the competency-examinations between disadvantaged and non-disadvantaged students, furthermore what differences there are between the characteristics of the school (pupil-composition, teachers’ professionality and fluctuation etc), since there have not been many comparative studies focusing on the differences between disadvantaged and non-disadvantaged pupils. Another goal of the dissertation is to interpret the academic achievement of the pupils in the social-economic space where their education takes place, thus it fills in the educational research gap. The third goal is to find those segments of the higher education, which can provide chances for disadvantaged students to gain higher qualifications or to graduate. Finally, we are looking into the characteristics of the secondary education, which promote the access to higher education for disadvantaged pupils. The novelty of the dissertation lies in the fact that there has not been any international or national research analysing the competency-results of secondary education based on two databases.

**Applied methodology**

Our research has made of use of three databases, two of which were completed: in 2012, grade 10, national competency results (NCR), its student, school and institution based databases, as well as the University Admission (UA) database are also complete and whole. The third database involves the results of the questionnaires filled in by the students at University of Debrecen, focusing on the factors affecting the choice of an institute.

The NCR databases were unified along with certain variables, thus we managed to order the institutional data to each and every student, which enabled a complete and whole
examination. We created further variables in the unified database to facilitate analyses. Based on the law in 2013 we determined the variable of disadvantaged. Along our variables we can differentiate 50236 non-disadvantaged and 25090 disadvantaged students. We structured the different governing bodies into groups (state, religious, foundation and other), so we could apply a governor-variable to conduct statistical analyses. In the database we used the official indexes of Educational Office (family background index, discipline index, motivation index, student composition index and learning difficulties index), which have been created based on several variables. The family background index plays a pivotal role in the dissertation, because the expected value is estimated based on this (presupposing a linear relationship between the family background index and the competency result, it is to be expected what kind of family background leads to certain competency results), and we related to this estimated value whether a student performed better or worse. The family background index includes the parental school qualifications, the number of computers and the books at home as well as the number of the pupil’s own books.

The UA database involves the data of 122004 applicants, 85673 of whom have been accepted to higher education and only 3346 of whom are from disadvantaged background. We ordered the institution-level data to the National Educational Code of the institution (creating the NCR-UA database), thus it proved to be necessary to select those successfully admitted students who were most likely to have written the national competency test in 2012. When creating the Competency test variable, we included the year of GCSE, date of birth and the level of education. As a result, we narrowed down our database to 31232 students, 2305 of whom were from disadvantaged background. The two databases come from different years, since those in grade 10 in 2012 applied for university admission two years later, which accounts for employing the university admission database of 2014. The novelty of the research lies in linking the two databases together, and as a consequence we have gained more information about the students' secondary school. The limitation of the databases is the fact that due to personality rights we could adjust the two databases at the level of schools, and thus the individual career path cannot be followed up.

The last database was based on completed online questionnaires in 2016/17 among students of Debrecen University, which was sent to everyone via the administrative system, Neptun. We chose DU as the place of our research, because according to the official admission data this university had the highest number of disadvantaged students. The online questionnaire was completed by 1847 students, 307 students applied for extra admission points due to their disadvantaged background, while 1475 students did not receive extra points. We had to modify the database as students' answers regarding questions about
disadvantaged background were unreliable. As a result, we created a variable, and we grouped those students into the disadvantaged category whose parents have no GSCE. Our database also involved doctoral students and students in postgraduate specialisations, however we omitted their data from the analyses as their data could not be matched with the university admission databases. Finally, 1507 completed questionnaires formed the basis of the analysis, 269 (18.3%) of whom were from disadvantaged background, and 1204 not disadvantaged, 34 respondents could not be evaluated.

During our analysis we used SPSS17 and its various analytical methods. We performed the two- and three-dimensional analyses of the contingency-table (the distribution of the students between the types of schools and governors), the one step and two step variance-analysis of the performance variables. We conducted a linear regression along the expected value. This highlights the correlation between the family background and the academic performance. With the help of the linear regression we could estimate the expected competency test-result on the basis of the family index. We subtracted the actual performance from this estimated value and we examined how different were the results from the expected estimates. Finally, we conducted cluster-analysis on the data of Debrecen University to create groups along the factors affecting choosing a university. We used Mapinfo 10.5 to illustrate our regional data, where we used small regional scales (subregion). We attempted to group the small regions in equal numbers into the categories, and we rarely used unique categories.

Our findings

One of our primary aims was to examine the academic performance of secondary grammar school students from disadvantaged and non-disadvantaged background, the differences in schools between these two groups, the affecting factors affecting individual performances, as well as the regional differences. Another aim of the research was to explore the choice of institutions and academic fields made by students from disadvantaged and non-disadvantaged background, also the regional distribution of disadvantaged students according to fields of study, furthermore the comparison of the secondary grammar schools of the two groups.

The novelty if our research lies in the fact that most researchers define one school disadvantaged, and not the individual student. We have used the students' data at secondary schooling level along with the related institutional data, thus we managed to conduct comparisons. In the higher educational studies, we could match the Education Office ID to the student, which resulted in school aggregated data. Our database is unique, which adds another
aspect of novelty to our research. The limitation of our research is that we were unable to attach and match secondary school results to individual students in tertiary education.

Students’ performance and their choice of institution are influenced by many factors, which cannot be wholly examined, so we decided to turn our attention to only a couple of factors in our hypotheses, however we do not exclude the influence of other factors. Our first two hypotheses regard public education, the second two regard tertiary education, and the last one concerned the relationship between secondary and tertiary education.

**Our first hypothesis** claims that economic development helps the academic performance of disadvantaged students in several ways, thus in better developed regions the academic performance of disadvantaged and non-disadvantaged students will improve, and the difference between the two groups will be less significant - this hypothesis was partly justified. In the central areas, the north-western regions, in the agglomeration of the capital and the centre of counties we can observe better academic achievement in the cases of both groups. On the peripheral parts of the country, in the region of Drava and east from Balassagyarnat- Bekescsaba we could see worse competency results. We discovered during our research that regions with better economic indexes have little differences between the disadvantaged and non-disadvantaged students. The estimated value based on the family background index and the difference from it highlighted the fact that in better economically improved regions have better school performances in both groups, and they even outdo the estimated values. In less developed regions students did not even achieve the lower estimated value, which reflects the divided character of the country. Our hypothesis was refuted only in Bacs-Kiskun county, since students achieved here higher than the estimated value, which could not be anticipated due to the region’s economic situation. This could be explained with the educational traditions of the region; however, the evidence depends on micro-examinations that is not the aim of our research.

**Our second hypothesis** claims that disadvantaged students learn in less selective and generally worse schools, which can result in poorer academic achievement – this hypothesis was justified. 21% of the disadvantaged students attend secondary grammar schools, while non-disadvantaged students are represented by 45.2%. Vocational secondary schools have an almost equal proportion (40.1% and 41.4%), while training schools with lowest qualifications have the majority of disadvantaged students of 38.9% as opposed to non-disadvantaged students of 13.4%. Our results supported the presupposition that a lower number of non-disadvantaged students (8.7%) attend religious schools as opposed to non-disadvantageous students (11.5%). The low number of disadvantaged students in religious schools is explained by the historical fact that following the secularisation of the schools in 1948, there have been
no vocational religious schools, as most religious schools are secondary grammar schools. Religious schools necessitate an oral entrance exam, which apart from the written entrance exam, the aim of which is to explore whether the family can match the expectations of the religious school and this favours middle-class families. It is important to mention that our research examined the complete religious sector, we did not study the different religions, thus there cannot be expected any subtle differences with this regard. The schools with disadvantaged students have teachers with lower professional performance, higher teacher fluctuation and a strongly disadvantaged composition of students, lower learner motivation and larger number of students with learning disabilities.

*Our third hypothesis* claims that the economic development of a region determines the proportion of disadvantaged students into higher education at lower-level of education than at higher level of education - it was justified. The highest proportion of the disadvantaged students (6.4%) in the higher level of training school, the lowest (1.5%) in Master-degree programmes. The number of disadvantaged students is the biggest in the higher level of training schools in the most disadvantaged regions The bachelor degree courses are represented in regions which cannot be considered the most disadvantaged, yet their results stay below the national average (eg. Bacs-Kiskun county). It can be stated that the aspiration of disadvantaged students from economically better developed regions is more significant towards higher educational levels. This cannot be explained only with economic reasons, but the dissertation examines the relation of these two only.

*The fourth hypothesis* claims that the proportion of disadvantaged students is lower at educational levels which are very popular or difficult, moreover their choice of institution is influenced by their financial background and the location of the institution- it was justified. The disadvantaged students’ choice of academic field was examined from two aspects: from the absolute numbers and on the basis of the proportion. Regarding the number of students, most disadvantaged students study in economic fields, however this does not display the highest proportions. The highest proportion of disadvantaged students studies in education training courses, teacher programmes and master degrees. This is a positive result since they have better chances to become employed after graduation, however their salary does not belong to the highest category. The doctor and medical schools have their own database, so we did not intend to separate this educational field. On the basis of the data it can be stated that disadvantaged students do not study at medical school to become doctors but to become nurses or ambulance nurses. However, these are good employment prospects. Agricultural and arts majors also have disadvantaged students, however they will be least likely to pursue a career in their own field, and they will find a job during a longer period of time. The number
of disadvantaged students in sport-education is high, where graduates have less chances to become employed, moreover based on the Graduate Follow Up Program (DPR) the non-disadvantaged group finds employment earlier. Administration, military and police forces colleges see a higher proportion of disadvantaged students, and this seems to be an appropriate choice regarding employment. This dissertation cannot aim at analysing each and every major and department, but this could be the subject of further research.

Disadvantaged students choose institutions that are not far away, which resulted in the fact that Debrecen University has the highest number of disadvantaged students. Choosing one university has several reasons. On one hand the distance determines the choice, on the other hand the institution’s financial support as well as the fact that a disadvantaged students do not want to leave their environment far behind. The attachment to their environment is also important among non-disadvantaged students as it being the most dominant factor when it comes to choosing university.

*Our fifth hypothesis claims that schools which select more, have a better student-composition and staff will help getting into higher education, and there are differences between the governors and types of schools – it has been justified.* Disadvantaged students can get into university from schools, where the academic performance exceeds the average performance of disadvantaged students, while in the case of non-disadvantaged students an average academic performance is sufficient. There was a smaller difference between the schools and their characteristics of the two groups, as opposed to the differences in the competency test results at secondary education in the complete students’ databases. This means that the selection of higher education has diminished the differences between disadvantaged and non-disadvantaged students, thus making the composition of university students even more homogenous. Admission to higher education is facilitated for disadvantaged students if they attended schools where the number of disadvantaged students was low, motivation was higher, and teachers are ambitious and professional. It is more difficult to get into religious secondary schools, but those disadvantaged students who managed to get into one had better chances of studying at university.

The findings of the dissertation established the argument that the Hungarian Education system is selective based on family background and it does not encourage social mobility. Our regional research supplemented the regional analysis of the competency-test, moreover our research proves to be a novelty since it supports the argument that there are regional differences in the academic performances of the disadvantaged students. Furthermore, it is evident that the social and economic environment influences the academic performances of the students, since disadvantaged students do not perform poorly and worse than non-
disadvantaged students everywhere in the country. The expected value is a new analytical method in the Hungarian educational research, and we conducted the analyses of the regional differences in the values for the first time. The analyses proved that the differences displayed in competency test-results reflect the increasing differences in the country. We studied the competency test-results and the characteristics of the schools at the level of students, which is a novelty compared to previous studies. Religious secondary schools have a more selective admission policy; however, their students succeed at higher education entrance exams. Another new aspect of the dissertation is that we have proven with the help of a national database that the choice of the university and the study-field is different between the disadvantaged and the non-disadvantaged groups, and we highlighted the different characteristics of the universities at Debrecen University. The dissertation examined the secondary schools of the successfully admitted students and we claimed that the admission process of the tertiary education resulted in a more homogenous student composition since the secondary school results of the university students were closer to each other.

Works cited


List of publications related to the dissertation

Hungarian book chapters (4)


   In: Új kutatások a neveléstudományokban 2014: Oktatás és nevelés : Gyakorlat és tudomány. Szerk.: Tóth Zoltán, Magyar Tudományos Akadémia Pedagógiai Bizottsága, Debrecen, 147-159, 2015, (ISSN 2062-090X)


Hungarian scientific articles in Hungarian journals (5)


   Modern Geográfia. 10 (3), 1-14, 2016. EISSN: 02062-165.
   *Iskolakultúra.* 26 (12), 16-30, 2016. ISSN: 1215-5233.
   DOI: http://dx.doi.org/10.17543/ISKKULT.2016.12.16

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**Hungarian scientific articles in international journals (1)**


**List of other publications**

**Hungarian books (2)**


**Hungarian book chapters (2)**


**Foreign language Hungarian book chapters (2)**


Foreign language international book chapters (1)


Hungarian scientific articles in Hungarian journals (3)


Foreign language scientific articles in international journals (1)


Other journal articles (2)


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