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CONTEXTUAL EFFECTS ON STUDENT EFFICIENCY AT SECONDARY SCHOOL STUDENTS*

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Abstracts: The purpose of the study is double: on the one part, the presentation and popularization of a scarcely used method in domestic sociology, the contextual analysis, on the other, the presentation of the effects of the cultural and social capital on high-school students' efficiency within an OTKA 2006-2008 research project. The regression models called attention to the importance of the contextual (institution-wide) effects on high-school students' efficiency and performance. This study presents these effects by using Davis's typology and separates the effects on individual and group levels. Among the factors that explain school success are sex, cultural capital brought from home and the students' and their parents' relationship resources (in the case of the last one we accentuate those relationships which are determined by the students' and their parents' religiousness). We came to the results that while boys' school (class) percentage does not have any contextual effect, the percentage of parents with degree per school/class already has an effect on the students' school efficiency, and concerning social capital we also have interesting results.

Keywords: contextual analysis, Davis's typology, student efficiency, cultural- and social capital effects

INTRODUCTION

One aim of this study is the presentation and propagation of the contextual analysis as a method. The other goal is revealing the individual and contextual effects on the efficiency of secondary school students (differences in sex, cultural capital effects, and finally – with a little more emphasis – the analysis of the role of social (or relationship) capital related to religiousness).

The introduction of the contextual analysis is due as it is still a relatively unused method in our country. Nevertheless, our attention has been drawn to it by the PhD

* Herewith I would like to thank my teacher, László Bertalan – who, unfortunately is not among us any more – for helping me take fancy to contextual analysis during his courses. I would also like to thank Gabriella Pusztai for many years of cooperation, without whom, this essay could not have come to existence. The research entitled *Plans for further Studies of Secondary School Students in a Border Region* (T048820) used in this analysis is sponsored by the OTKA and led by Gabriella Pusztai. I took part in it as a participating researcher. Thanks be to the anonymous critics of the *Szociológiai Szemle*, as well, who contributed to my work with their useful opinions and advice.

thesis of Ferenc Moksony (1985) and by the text books and courses of László Bertalan (1986a, 1986b, 1987a, 1987b). In our view contextual analysis presents great opportunities for analysis, and is capable of solving various questions so far unanswered.

It is the regression models that draw our attention to the contextual effects in the cases where, among the explanatory variables, the group/institution level variables are also related to the dependent variable. The contextual analysis, however, is capable of much more: it is able to do multi-level analysis, and isolate the individual and group-level effects of the same variables. (In many cases the two effects are not independent of each other and they interact – see also the additive-crossing case of Davis's typology).

The contextual analysis method we use (Davis's typology) is a relatively simpler and more picturesque way of contextual analysis, and this causes the very barriers of the analysis, as well (see later). These problems could only be solved by more complex methods, which cannot be analyzed with SPSS, but the use of these methods exceeds the boundaries of this essay. I reckon, though, that the presently used Davis-method is apt for drawing attention and for understanding the essence of the analysis. The results have also proved to be highly interesting.

Let us get acquainted with the method first.

THE METHOD

We examine the institutional effects on student efficiency with contextual analysis. With the help of the method we are able to segregate the institution-level effects from those on individual level (e.g. the education of parents can affect student efficiency [individual effect] and that the school/class based rate of parents with degree can affect the efficiency of students with parents who have or do not have degree, as well [institution-level effect]).

The contextual analysis became the center of attention by the discovery of ecological misconclusion in the 1950s (Bertalan 1980; Moksony 1985). Robinson was the first to highlight the dangers of misconclusions (Robinson 1980) that originate in the interchanging of analytic levels. The statistic object, to which the correlation refers at the individual correlations, is indivisible and the variables are the descriptive characteristics of the individuals (e.g. height, income, sex, or race). As opposed to this, at the ecological (i.e. group-based) correlation, the statistical object is some group of people and the variables are statistical constants, percental rates or averages. According to Robinson, the aim of researches based on ecological correlations is to get to know something about individual behavior, and it is the very danger of misconclusions. Ecological correlations are used in most cases because individual correlations are unavailable. (In Robinson's example the rates of Afro-Americans and the illiterates in the examined regions showed highly positive relations, whereas the actual individual correlation /is one Afro-American and illiterate/ was much smaller. The difference between the ecological and individual correlations came out to be fivefold. The background to this fact can be that the Afro-Americans and the illiterate are in greater rate in some undeveloped areas, while there the Afro-Americans

may not be more illiterate than white people.) The reason for misconclusions can be a contextual effect among the variables. In such cases, including the contextual variable into the individual model may help evading misconclusions.

Even the classics of sociology noticed contextual effects (Bertalan 1987a). Weber and Durkheim talk about the minority- and majority effect among Protestants and Catholics who behaved differently whether being in minority or majority. According to Weber, the religious or national minorities pursue modern professions in a higher rate when they are in minority. Also, at Durkheim the suicide rates of Protestants are always higher than those of Catholics, but where Protestants are in minority, the difference in suicide rates between the two groups is smaller. Here an individual effect is the impact of the denomination on suicide/pursuit of modern professions, and a contextual effect is the impact of the country-based rate of denomination members on suicide/pursuit of modern professions. Stouffer et al. (cited by Bertalan 1987a) noticed the contextual effects in their "American soldier" study in the mid 20th century in their "frustration" model. It suggests that the rate of promotions per branch influences the contentment of soldiers, whether they have been promoted or not. Where the number of promotions is high, the ones being promoted are less contented than where this number is lower, and those that are not promoted in the branch of high promotion rates are less contented than those in the branch of lower promotion rates, as well. (Individual effect is the impact of promotion on contentment, and contextual effect is the impact of promotion rate on contentment.)

The contextual analysis may bridge the gap between the micro- and macro-level analyses. ("Network" analysis can play this role in sociology, too /Coleman 1989/.) Moksony (1985) segregates three different types of analysis: the individual, the relational and the contextual analyses. In the individual analysis we are to explore the connections among the so- called absolute characteristics of the individual. In the relational analysis there are two different objects (e.g. the individuals and their classmate), neither is part of the other, and they take place on the same level of the analysis (e.g. one's choice of career is impacted by that of their favorite classmate – these are the so-called relational features). Finally, in the contextual analysis, there are two or more objects; the level of objects is different, and one is part of the other (e.g. student efficiency can be affected by the parents' education, and by the rate of students with highly educated parents in the class, as well.) These two effects can be isolated by contextual analysis.

Table 1. Types of Analysis

Number of objects	Object level	
	Same	Different
One	Individual analysis	–
Two or more	Relational analysis	Contextual analysis

We can distinguish contextual variables inside and outside the model, and within the first type contextual variables can be created from independent or dependent variables. The most common one is context made of independent variables, for instance in our case the rate of highly educated parents per school/class was formed of

the "education of parent" individual independent variable. The effects of this on student efficiency is what we have examined (the same was how the rate of boys per school/class affects the efficiency of boys and girls). A context made out of the dependent variable may be – with a rather unusual example – the way of burial customs in cemeteries. It can affect burial customs e.g. between people of working class and non-working class origins.

There can be contextual variables outside the model, as well, where the contextual variable is not created out of the dependent or explanatory variables. In Murányi's example (2006), the rate of Gypsies, as a context affects the prejudice of men and women against the Gypsies (the independent variable is sex, the dependent variable is prejudice and the rate of Gypsies per area is the contextual variable).

There may be various mathematical types to the contextual variables. They can be numerousness (e.g. the number of people in a group), rates (see further analyses; rate of highly educated parents, rate of men, etc.), averages (e.g. the average of applicants' school performance or entrance examination scores in universities), and standard deviations (e.g. the standard deviation of entrance examination scores).

The literature uses three concepts in similar respect: the multi-level analysis, the contextual analysis and the structural analysis (Moksony 1985). Blau (1960) introduced the notion of structural analysis, whose essence is deducing the different features of groups from the differences among individuals making up the group. Wellman (1988) also emphasizes the importance of structural analysis, but he realizes individual actions in the network of structural necessities, and perceives society through the relationships of individuals. The contextual analysis is somewhat different from these, since we explain the individual's behavior by group-level and individual-level effects, thus a sort of methodological individualism gains dominance. Moksony (1985), in addition, draws our attention to the fact that by using contextual analysis we are able to eliminate criticism against micro- and macro sociology, since these two approaches complement each other in contextual analysis.

During the actualization of contextual analysis we can find a number of methods (Moksony 1985): from the multi-dimensional cross tabulation analysis and Davis's typology, to the multi-variable regression-analysis methods and covariance analysis. The English-based literature (e.g. Boyd and Iversen 1979; Iversen 1986, 1991; Hox 1995) also enumerates the possible methods (cross tabulations, diagrams, regression analysis, etc.). These methods are capable of handling and including dichotomous and continuous variables, and we can see examples of multi-level factor- and path analysis, as well.[1] Also, as a separate branch of statistics, we find the so-called "multilevel analysis" which has a considerable literature (see e.g. the brief summarizing study of Snijders 2003).

The method for this essay will be Davis's typology,[2] which is more complex than the multi-dimensional cross tabulation method, yet it is picturesque and reader-friendly.

1 In the literature there are instances of using of other data-analytical programs besides the SPSS (HML, VARCL, ML, MLwiN), but applying them exceeds the boundaries of this study.

2 We also used this method in two former essays which were published in the *Statisztikai Szemle* (Fényes 2000; Fényes and Pusztai 2004). We examined the institution-level effects on chances for access to higher education with men and women, and students of working class and non-working class origins. In the second one – similarly to this study – we dealt with the efficiency of secondary school students.

We are aware of the method's boundaries (it is apt only for dichotomous variables, and is able to include only one individual, and one contextual variable /that is inside the model/, however, we attempted to filter out another contextual effect by including a new variable), but for keeping the description graphic, we abode by this method.

Another methodological problem is the case of low R-square indexes in regression models, although its importance divides literature on methodology (Moksony 1998; Hunyadi 2000). We do not intend to be challenged in this debate; we would only like to notice that the low R-square indexes emerging at the regressions are warning signs for cautiousness when analyzing the results.

In this essay, school efficiency is a dependent variable, on which – besides the individual explanatory variables – we examine the effects of contextual variables formed of independent variables. Due to the boundaries of the Davis–method, we need to examine numerous, separate models, since there is a chance to include only one individual and one contextual variable at the same time. In our first model the explanatory variables are sex and the proportion of boys in the schools/classes. In our second model, it is the education of parents and the rate of highly educated parents in the schools/classes, and in our third and fourth models the religious relationship resources of students and their parents which can affect the efficiency.

In the following, we are going to present Davis's typology by the example of education of parents. In this case school efficiency can be affected by the education of parents and by the rate of highly educated parents within each class/school, as well.

DAVIS'S TYPOLOGY

The typology was developed by Davis et al. (1961) in the 1960s. The first step is to create an institution-level database, where one case will be a school or class and not an individual.

At first, we have to count the rate of students with highly educated parents per school/class, then we count the rate of those who were more efficient than the average per schools/classes in the two student groups (at first among students with highly educated parents, and next among students with not highly educated parents). (See details of the development of the efficiency variable in the data and variables section.)

In the next step we will place regression lines on the efficiency of students with highly educated parents and with not highly educated parents as a function of the rate of highly educated parents per school/class.

Then we will start to apply the typology. The distance of the lines shows the individual effect, and the slope shows the contextual effect. Based on this, we can make a difference among these hypothetic cases:

First Case: There is no individual or contextual effect, therefore the two lines coincide and their slope is zero. In this case the education of the parents does not affect student efficiency and the rate of highly educated parents per schools/classes affects neither the efficiency of students with highly educated parents nor the efficiency of students with not highly educated parents. (Obviously, this contradicts the hypothesis, according to which the children of highly educated parents are more successful in

secondary school and that where there are a lot of highly educated parents, the situation can be of stimulating effect on the efficiency of all students.)

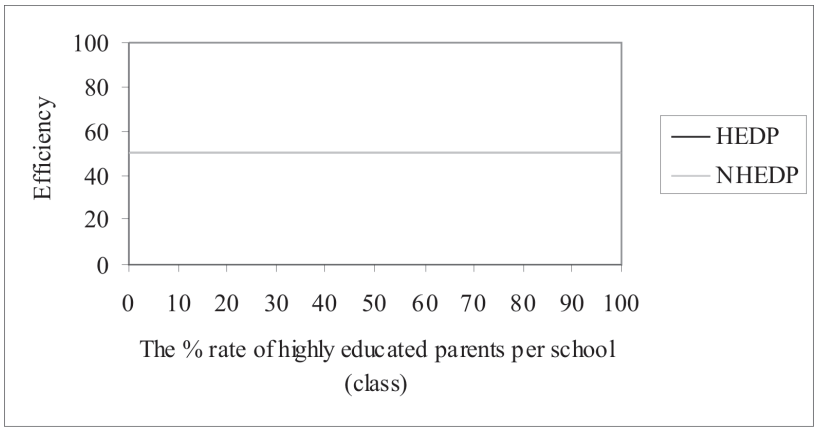

Figure 1. First Case: There is no Individual or Contextual Effect

Second Case: There is individual but no contextual effect, therefore the two lines are parallel, their slope is zero, but they do not coincide – one of them is situated higher than the other. In our case it would mean that the line of the students with highly educated parents is located higher (these students are more efficient), but the rate of highly educated parents per schools/classes affects neither the efficiency of students with highly educated parents, nor those with not highly educated parents.

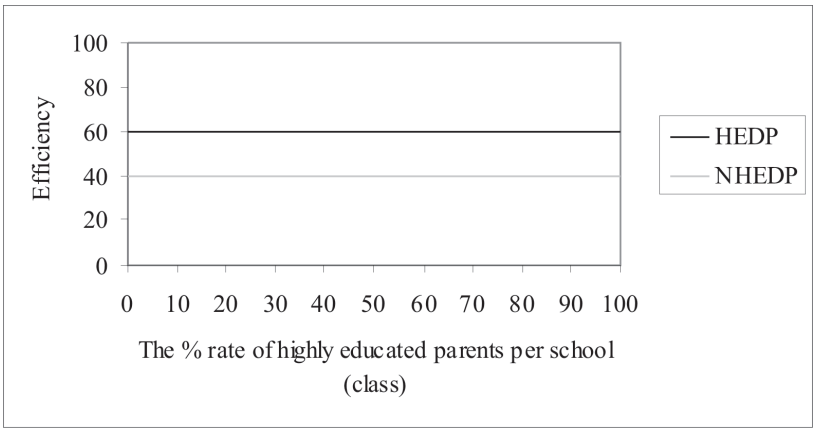

Figure 2. Second Case: There is Individual but no Contextual Effect

Third Case: There is a contextual effect, but no individual one. In this case, the two lines coincide, but their slope is not zero. In our case, in this type, having highly educated parents does not improve efficiency, but both groups (children of highly

educated and not highly educated parents) indicate improving tendency in efficiency, if there are numerous students with highly educated parents in the school/class.

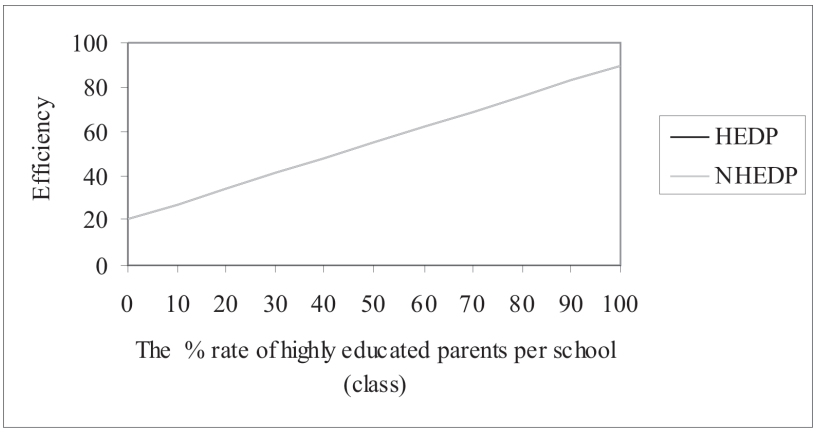

Figure 3. Third Case: There is Contextual but no Individual Effect

Fourth Case: There is contextual and individual effect, as well (additive case). This time the two lines are parallel, and their slope is not zero. The line of the children of highly educated parents is situated higher – that is they are always more efficient (in all schools), and the efficiency of both student groups increases in the schools/classes having lots of students with highly educated parents. Although, the two lines are parallel, the children of highly educated parents will be in the lead all through.

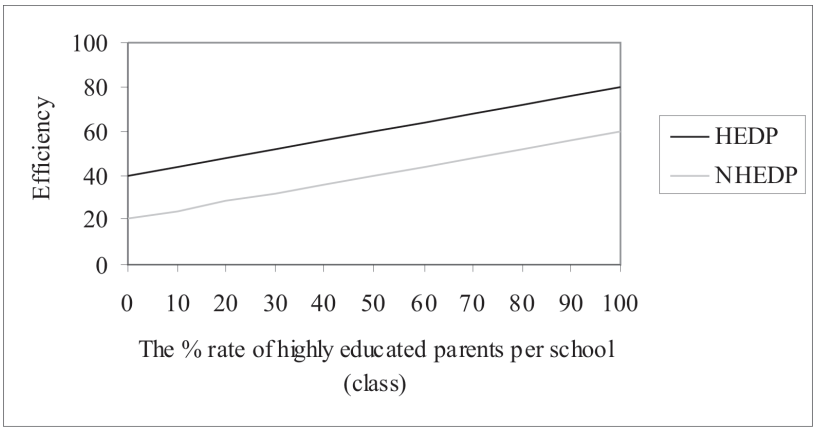

Figure 4. Forth Case: There is Contextual and Individual Effect as well (Additive Case)

Fifth Case: There is contextual and individual effect, as well, and their effects cross each other (additive crossing case). Here I would like to highlight three subtypes:

5a. One of the groups is affected by the context, the other is not, i.e. the slope of one of the lines is zero, while that of the other is either positive or negative. In our case it is possible that the rate of highly educated parents per schools/classes only affects the efficiency of the students with not highly educated parents (and positively), while the efficiency of students with highly educated parents does not change in the function of their rate in the school/class. In such cases, it is crucial where these two lines intersect each other, or if they intersect at all. For instance, we presume that the efficiency of the students with highly educated parents is generally higher than that of the children with not highly educated parents, and only in the schools/classes with numerous highly educated parents can the children with not highly educated parents catch up with the others in terms of efficiency. In this sense, the distance of the two lines gradually reduces, and may even intersect each other somewhere at the end.

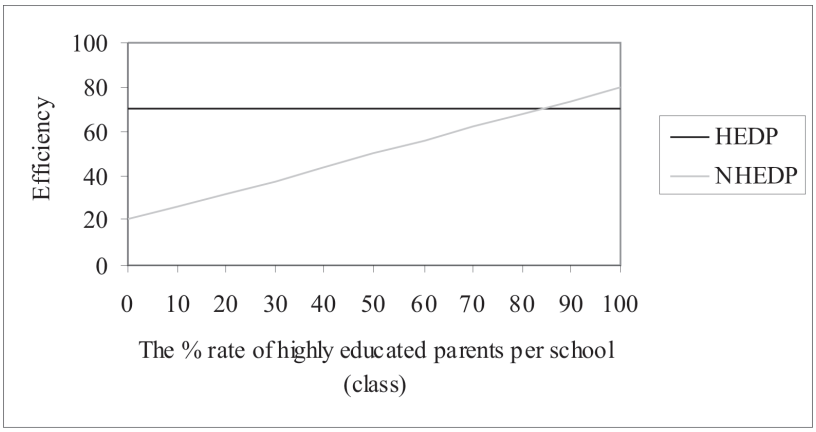

Figure 5a. Fifth Case, Subtype A.: There is Contextual and Individual Effect, as well, and their Effects cross Each Other – One of the Groups is affected by the Context, the Other is not

5b and 5c. However, this is not the most typical case, but the most typical is when neither line's slope is zero, but they do not coincide and are not parallel, either. It is also essential whether the lines are declining or increasing, and where the point of intersection is, if there is any. We usually distinguish the case of the narrowing gap here – there were examples to this in our former study: Fényes (2000)–, and that of the X-shape relationship at the already mentioned minority–majority-effect, where one of the lines declines, the other increases, and somewhere at the middle they intersect each other. Also there may be other, innumerable additive crossing cases.

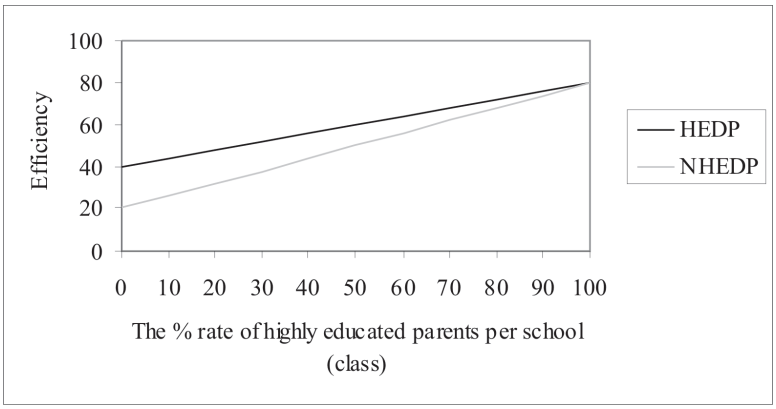

Figure 5b. Fifth Case, Subtype B.: There is Contextual and Individual Effect, as well, and their Effects cross Each Other – Case of Narrowing Gap

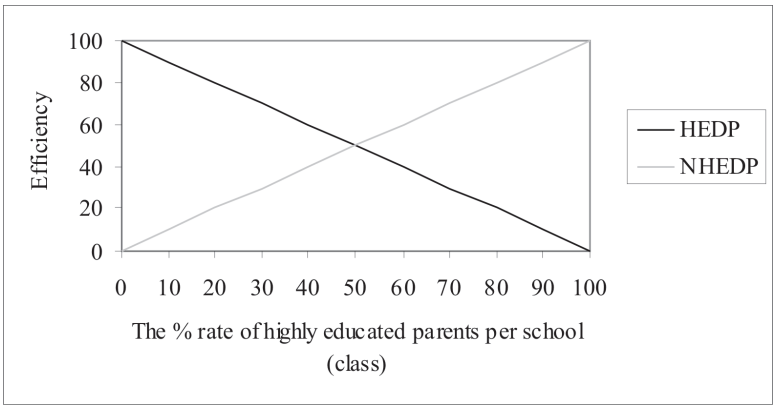

Figure 5c. Fifth Case, Subtype C.: There is Contextual and Individual Effect, as well, and their Effects cross Each Other – X-Shape Relationship

In the following, our examples will present three types: neither individual nor contextual effect, the clear individual effect, and the 5a type of the additive crossing case.

We need to notice that Davis's typology is mainly apt for interpreting lines aligned by linear regression, although Davis et al. (1961) dealt with non-linear cases in their article, as well. The typology may also be interpretable with parabolic or wave-type functions.[3]

3 As an interesting example for parabolic relationships, we find by examining the relationship between the regional rate of Gypsies and the degree of prejudice against Gypsies (Murányi 2006). Murányi examined the degree of prejudice among the youth according to sex, age group, school type, the degree of religiousness, residence, the education of parents and denomination. In his results he pointed out greater prejudice where the regional rate of Gypsies was rather low and where it was somewhat high. Our other note is that the work of Boudon (1987) was also based on Davis's typology. He did not only use diagrams, but demonstrated the five mentioned types with equations, as well. We do not intend to discuss these in the following, however, we consider the analysis highly exciting.

One more notice before talking about the boundaries of the method. We ran two sorts of models while examining the contextual effects of social capital variables related to religiousness. In the second one we included a new variable (descriptive of institutions) among the explanatory variables, and that is the type of maintainer (if the institution is a denominational school or not). We made this step as in the work of Pusztai (2007) it seemed that the efficiency of denominational school students differed in a significantly positive way from those studying in non-denominational schools – even after including other variables. Thus, the question emerged, how the rate of those attending religious youth groups affects school efficiency if we also include the denominational/non-denominational school variable, filtering out its other effects. Or, if it is the rate of churchgoers causing discrepancy between the efficiency of churchgoers and those not going to church, even if we filter out the effect of denominational/non-denominational schools.

Finally, the boundaries of the model again: it is apt only for dichotomous variables, is able to include only one individual, and one contextual variable (that is inside the model), and mainly able to process data of lines aligned by linear regression. In this present analysis, we have formed the contextual variable out of the independent individual explanatory variable, by using simple rates.

THEORETICAL BACKGROUND AND HYPOTHESES

The study of school efficiency has a central role in pedagogical examinations. The factors affecting the efficiency of schools and within, the causes of differences in student efficiency are examined. The first student efficiency analysis to mark the effect of school context was the famous Coleman-report. According to the first results, the role of the school factors was negligible in the differences of student efficiency, and the decisive ones were mainly family background and individual abilities. However, according to newer PISA tests, differences among school performance results can also be explained with the quality of teaching and the social background of student groups. This was the time when the examination of contextual effects on school efficiency emerged. The effect of the ethnic composition (segregated or integrated education) on student efficiency is an important analytic area as well, but this analysis does not intend to discuss it. Our research discusses the effects of sex and social composition of school/ class on student efficiency besides individual factors (sex, the education of parents). We also rendered special attention to the effect of religious relationship resources, and their appearance in the school/class.

At first we analyzed the effects of the differences in sex on efficiency. According to the secondary school analyses of DiMaggio (1982), the cultural capital of girls was significantly of higher value than that of boys. Besides these, we can state that the secondary school system has been optimal for girls, since they are more successful and efficient than boys. (According to Hungarian surveys, the cognitive abilities of girls among eighth graders in primary schools are evidently better, but their school efficiency does not overtake that of the boys, except in the field of reading comprehension (Rostás and Fodorné 2003). Based on surveys made in OECD

countries, the 15 year-old girls are better in reading and comprehension, and boys are better in mathematics, but their results in natural sciences are somewhat similar (*Pillanatkép…*2004). By this time, the dominance of girls' achievement proves evident.) According to our hypothesis, secondary school girls obtain more language exam certificates, participate at more academic competitions, gain better school performance averages, and a majority of them plan to continue their studies in higher education, thus prove to be more successful than boys. Nevertheless, it is a question if girls are more efficient than boys in schools/classes where boys are in majority, or by any chance, where girls are in great majority (above the average of 60%), boys are more efficient. According to our hypothesis (H1) where boys are in significant minority (under average of 40%), the more efficient girls will be of stimulating effect, and therefore these boys will produce better results than where they are in the majority (this resembles the minority–majority effect appearing in the literature). Taking everything into consideration, however, we can state that girls are more efficient, thus their line (by using the Davis's typology) will be located above that of the boys.[4]

In our following analysis we examined the effect of parents' education – one of the forms of cultural capital (Bourdieu 1998) – on student efficiency. Ferge (1980) draws our attention to a contextual effect in her work: students coming from underprivileged backgrounds show greater intention to study in higher education in those schools/classes where the rate of students with well-educated parents is higher. She gives reason for this fact that the heterogeneity of students can correct the intention to study further for children who have parents with lower education.[5]

One of the important indicators of efficiency is the intention to study further on, but the following three components of efficiency (see data and variables section) can be affected by the education of parents in a similar way. According to our hypothesis (H2), as the rate of highly educated parents is increasing, the students both with highly educated and not highly educated parents will be more efficient, but the children of not highly educated parents will be affected more positively. We also presume that the children of highly educated parents will be more efficient in all of the schools (i.e. their line will be located above that of the children of not highly educated parents), but the divergence will decrease as soon as the rate of children with highly educated parents in the school (class) starts to increase (narrowing gap, increasing lines).

Several works of Pusztai indicate (Pusztai and Verdes 2002; Fényes and Pusztai 2004; Pusztai 2004, 2007) the effect of the social capital on student efficiency. This effect had already been confirmed by numerous foreign authors (e.g. Coleman 1961, 1988, 1990, 1998; Coleman and Hoffer 1987; Bryk et al. 1994; Meier 1999). At Coleman (1998: 14) the "social capital is realized in the structure of relations among agents." Bourdieu (1998) uses the concept of social – or relationship capital similarly: "they are the type of resources that are based on belonging to a group." (1998: 166–167). In Coleman's view, the social capital has an important role in producing

4 For the gender differences of efficiency at various indicators consult Fényes and Pusztai (2006) and Fényes (2008).

5 We can suspect significant institutional effects behind the development of decisions made in connection with higher education studies at students who attended secondary school also in the 1990s in Hungary (Róbert 2000a and 2000b).

human capital. He differentiates between social capital in the family and social capital outside the family. In the case of the last one, he highlights the effects of religious communities (e.g. students going to the same church) in denominational schools, on the school achievement of students. Besides these Coleman emphasizes the positive role of the closed, tight-knit structure of family ties and ties outside the family in producing human capital.

In our third and fourth models, therefore, we will examine the effect of the religious relationship resources of students and their parents, on the efficiency of students.

At first, we inspected the effect of the student churchgoing habits. We can consider churchgoing as a relationship resource linked to religion, as students are able to meet and interact with people from different social classes in the church. As Pusztai and Verdes discuss it in their article of 2002: "the openness of the local religious community is also strengthened by the fact that entering the community is not hindered by demographic or other filters (e.g. sex, age, education, types of settlement); thus it is a non-selective network. Considering the tightness of the relationship, it is like collaboration in other voluntary organizations: the network of weak ties, which is characterized by transitivity – the significant inter-relational probability of those indirectly joining – and by multiplicity – i.e. the possibility of using the primary relationship in different situations" (Pusztai and Vedres 2002: 96).

Therefore, if a student is a regular churchgoer, his relationships obtained within the religious community can affect his/her efficiency. Our hypothesis says (H3/A) that students who are regular churchgoers, will prove to be more efficient, but mainly in schools (classes) with numerous churchgoers (the simultaneous presence of individual and contextual effects, additive crossing case). Based on what we can find in the literature, we also presume that where there are many churchgoers among students, the efficiency of both churchgoers and students not going to church will be higher. The high rate of churchgoing is chiefly characteristic of religious institutions, and here, in this respect, Coleman's so-called "school effect" gains ground.[6] By including the maintainer variable, the contextual effect will presumably disappear, but we presume that an individual effect of a smaller degree will remain: the churchgoers will be more efficient than those not going to church.

We measured the strong (and also: closed) religious ties[7] of the student with three variables: the student's attendance of religious youth groups, close friends made from a religious youth group or church community, and finally the religiousness of the student's friends. According to our hypothesis (H3/B), the closed (religious) group of friends means a certain norm security, and this can increase the efficiency of these students (individual effect is present). Besides this the context, i.e. the rate of students with such strong ties within a school/class can also affect student efficiency in a

6 Coleman highlights the school-level (contextual) effects, differentiating between the "student input" and the "school effect" factors at the efficiency (Coleman 1988).

7 The literature differentiates between weak and strong ties. The former is a loose interlink, or acquiantance bridging gaps of significant social or physical distances (Granovetter 1991). The latter is a tight relationship which is characterized by either a closed structural build-up, or it is based on the acceptance of common values and norms. (Coleman 1988).

positive way, whether the student has such strong ties or not. However, it is highly likely that by the inclusion of the maintainer variable, this latter effect will disappear.

Our fourth model examines the effects of relationship resources related to the religiousness of parents, on student efficiency. According to some researchers (Carbonaro 1987; Morgan and Sorensen 1999a, 1999b), the relationships among the parents of students (e.g. that they attend the same church community) can take an important role in student efficiency. Also, in the schools where students' parents know each other fairly well, this can be of beneficial effect for those students whose parents have no such relationships. Therefore, our hypothesis states (H4/A) that if the parents of students are regular churchgoers, it can be of positive effect on student efficiency and this – presumably – will happen in classes where most of the parents are regular churchgoers and possibly know each other, as well (additive crossing case).

The strong ties (closed, religious group of friends) of parents can also be of positive effect on student efficiency, both on individual and group levels (H4/B). Nevertheless, we presume that the religious group of friends of the parents does not have as strong effect as when the student him/herself has such relationships.

DATABASE, SAMPLING

The database was created under the leadership of Gabriella Pusztai within an OTKA research entitled "Plans for Further Studies of Secondary School Students in a Border Region". The sampling took place in the spring of 2006. 11th and 12th formers were questioned in the secondary schools of Hajdú–Bihar and Szabolcs–Szatmár–Bereg Counties in Hungary, and in some Hungarian-speaking secondary schools outside the border (in Subcarpathia and Transylvania). The size of the sample was 1446, and the number of target schools was forty. The selection of the schools was rather special: school pairs (of denominational and non-denominational maintenance) that showed similar features according to certain input factors[8] were selected.

This present analysis aims to examine the contextual (institutional level) effects on efficiency; therefore we checked the number of students per school in the sample. An average of 36.15 people were asked per schools, and the standard deviation was 13.77 (10–58 students were questioned in each schools). This, unfortunately, shows that we were not able to obtain class-level data in all cases. In some schools only one class was questioned, in other cases we questioned two, and the class-level data are not retrievable any more. Thus, all of our contextual variables relate to rates per schools, and at certain schools this is class-level data, as well.

8 The population of the seat of the school, the education of parents, the rate of unemployed parents, the settlement type of the student's hometown, the rate of students receiving social aid. (See the detailed description of the sample in Pusztai 2007.)

DATA AND VARIABLES

The dependent variable in this analysis – and also in some analyses of Pusztai (last section of Pusztai 2007) – was student efficiency (EFFIC). However, the variable (index) measuring efficiency here is somewhat modified compared to Pusztai. The components of the original five-factor efficiency index were the possession of language certificates, participating in school competitions, the plan for higher education, the intention to spend time in higher education longer than the average, and the importance attached to studying by student. In our index, it was rather the higher rate of school performance averages gaining ground instead of the importance attached to studying by student, as we thought that the school performance average of the student should be included in efficiency by all means. Besides the school performance average – similarly to Pusztai – we considered the variables measuring the possession of language certificates, the participation in school subject competitions, the plan for higher education and the intention to spend time in higher education longer than the average. What is also different is that the efficiency variable we received was altered to dichotomous, separating the values under and above the average so that we could use the Davis-method. The dependent variable in the contextual (institution-level) database is better efficiency than the average for example in the case of girls and boys (GIRLEFF, BOYEFF).

Our explanatory variables (each is present on individual- and also on contextual level i.e. considering the rate per school/class) are: sex (SEX, BOYRA) and the education of parents (at least one of them has a degree or not) and the rate of highly educated parents per school (class) (HEDP, HEDPRA).

At the religious relationship resources of the student our first independent variable is churchgoing and its school/class rate (CHUR and CHURRA). The other three (that is six) explanatory variables refer to the strong (closed) ties of the students: their attendance of religious youth groups (RELYG and RELYGRA), if they made their close friends in a religious youth group or church community (RELCH and RELCHRA), and the predominantly religious group of friends (FREL, FRELRA).

At the religious relationship resources of the parents we have two (that is four) explanatory variables: the churchgoing habits (at least one parent is a regular churchgoer, or not, CHURP and CHURPRA), and the predominantly religious close friends (FRELP and FRELPRA).

At certain contextual models – as we have mentioned it at the discussion of Davis's typology – we included another explanatory variable, which is the maintainer of the school (MAINT). By this we were able to distinguish denominational and non-denominational schools.

RESULTS

In the last section of her habilitation dissertation Pusztai (2007) dealt with the factors affecting student efficiency in certain regions (domestic [Hungary], Subcarpathian, Transylvanian [Partium]) by doing a multivariable regression analysis. She noticed the effect of two contextual variables: the school rate of students going to church had a negative effect on efficiency, whereas the rate of students attending religious youth groups affected efficiency positively. This led to the present application of contextual models.

Another analysis was precedential to our research. In our 2004 analysis (Fényes and Pusztai 2004) we examined the individual- and group level effects on the efficiency of secondary school students by the help of contextual analysis. However, the dependent variable in that particular study is not efficiency, but merely one of its factors, i.e. plans to study at university. Another difference between the two analyses is that the 2004 research was done only among students of denominational secondary schools. (In our previous research there were class-level data available for us /as we questioned only one class per school/, which was an advantage.) There are also similarities: we can find the education of parents, the religious group of friends of the student and his parents and the churchgoing habits of the parents among the explanatory variables in both analyses.[9]

Let us check the present results. Our first question was how the differences in sex affect the efficiency of secondary school students. The regression results used in the contextual analysis are the following:

Table 2. Linear Regression Model on the Efficiency of Boys and Girls according to the School (Class) Rate of Boys

Dependent variable	GIRLEFF B's (SE)	Betas	BOYEFF B's (SE)	
Constant	61.26***(10.7)		54.74*** (10.84)	
BOYRA	0.012 (0.25)	0.008	-0.19 (0.24)	-0.134
R^2	0.000		0.018	

Note: Besides the regression B-coefficients in this table you can find the standard error. In addition, besides both the B's and the Betas we used an * to mark the significance of the coefficients (***=0.1%, **=1% and *=5% levels and in other cases the coefficient was not significant).

For the graphing of the lines we used unstandardized regression B-coefficients. In the equations of the two lines only the B coefficients belonging to the constant are significant: GIRLEFF =61.26 and BOYEFF=54.74. The figure of the model:

9 In the presentation of the results we will compare the relationships we got in the two (i.e. three) research analyses.

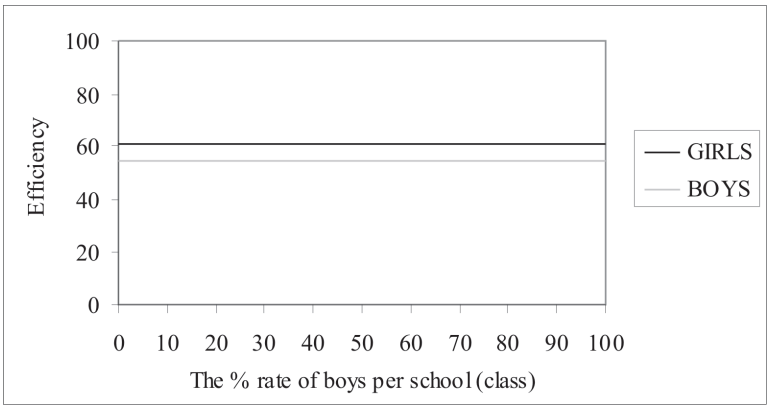

Figure 6. The Presentation of Contextual and Individual Effects with the Davis-method according to the School/Class Rate of Boys (the two lines show the school efficiency of girls and boys)

Note: For the interpretation of the results we mark that the rate of boys per school/class was between 0 and 100%. The average was a boy rate of 40%.

Corresponding to our hypothesis, girls are evidently more efficient (their line is above that of the boys), but there is no contextual effect, thus by the increase in the rate of boys in the class/school neither the boys nor the girls will be more efficient. (In Davis's typology this is the case of single individual effect.) In opposition to our hypothesis, if the boys are in greater minority, the girls with better results will not stimulate them (the minority and majority effects did not happen).[10]

Table 3. Linear Regression Model on Efficiency of Students with Highly Educated Parents and with not Highly Educated Parents according to the School (Class) Rate of Highly Educated Parents

Dependent variable	HEDPEFF B's (SE)	Betas	NHEDPEFF B's (SE)	Béták
Constant	56.37***(8.3)		32.79***(7.17)	
HEDPRA	0.3 (0.27)	0.18	0.82** (0.23)	0.5**
R^2	0.032		0.246	

Note: Besides the regression B-coefficients in this table you can find the standard error. In addition, besides both the B's and the Betas we used an * to mark the significance of the coefficients (***=0.1%, **=1% and *=5% levels and in other cases the coefficient was not significant)

10 The bad R-square indexes led us to check the data with graphs applicable by SPSS, and we could trace that efficiency is highly deviant both among boys and girls in the function of the rate of boys, but the efficiency of girls was better than that of the boys in a lot more cases. Thus, we can detect a simple individual effect.

For the graphing of the lines we used unstandardized regression B-coefficients. The equation of the two lines: HEDPEFF = 56.37 (only the constant is significant), and NHEDPEFF =0.82* HEDPRA+32.79. The figure of the model:

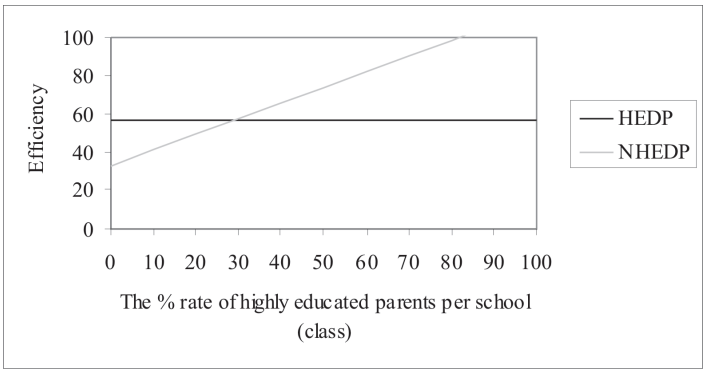

Figure 7. The Presentation of Contextual and Individual Effects with the Davis-method according to the Rate of Highly Educated Parents (the two lines show the efficiency of the children of highly educated and not highly educated parents.)

Note: For the interpretation of the results we mark that the rate of highly educated parents per school/class was between 0 and 90.63%. The average was 25.5%.

According to our results, the hypothesis is only partly supported. In line with our hypothesis, the efficiency of the children of not highly educated parents increases with the growth of the rate of highly educated parents in the school/class. However, the context does not affect the efficiency of the children of highly educated parents. The stimulating effect is only present at the children of not highly educated parents, and this agrees with the researches of Ferge (1980). Our other hypothesis was also left unsupported; we presumed that the children of highly educated parents would be more efficient than those of not highly educated parents in all of the schools. The results show, where the rate of highly educated parents is small, the children of these parents are more efficient, but where their rate shows increasing tendency the children of not highly educated parents show better results. We find the turning point at the 25% highly educated parent rate which is the average percentage of their presence. (According to Davis's typology it is the additive crossing effect [5a type] that is present.) The cause of the greater efficiency of children of not highly educated parents in minority may be that it is only the highly talented children of non-intellectual parents who get accepted to elite schools, and this causes their higher efficiency. This is one case of the selective migration which distorts the contextual effect [we found other instances for selective migration in our former research, as well (Fényes 2000)]. Besides these, the minority and majority effect was also present.

We can compare our analysis with the 2004 results. Then, the highly educated parents affected the students' plans for higher education (university) only on group level, and surprisingly enough, the children with highly educated parents had no greater intention to study further (there was no individual effect). We explained this with the fact that the examined schools were denominational, and thus the type of the school (Coleman's

"school-effect") affected positively the plans to study further at university of the children coming from disadvantageous backgrounds. In this present study, however, denominational schools were not the only type to be included, and there was an individual effect, although, its sign is changing; where there were few highly educated parents, it was the children of highly educated parents, in other schools it was the children of not highly educated parents performing better. (A further reason for the divergent results may be our dependent variable. In this analysis, the dependent variable is not only the plans to study further at university but a composite efficiency index. Nevertheless, during the checking of this index, the difference between the two analyses remained. The result we ran off with a one-way efficiency index on our data was very similar to the results gained with the composite index.) From among the students' own religious relationship resources we will now check the effect of churchgoing habits on efficiency.

Table 4. Linear Regression Model on the Efficiency of Churchgoers and Non-churchgoers Churchgoers, according to the School (Class) Rate of Regular Churchgoers

Dependent variable	CHUREFF B's (SE)	Betas	NCHUREFF B's (SE)	Betas
Constant	37,59**(9,93)		50,18*** (8,82)	
CHURRA	0,3 (*) (0,16)	0,3 (*)	0,08 (0,16)	0,08
R^2	0,09		0,006	

Note: Besides the regression B-coefficients in this table you can find the standard error. In addition, besides both the B's and the Betas we used an * to mark the significance of the coefficients (***=0.1%, **=1% and *=5% levels and in other cases the coefficient was not significant)

For the graphing of the lines, we used unstandardized regression B-coefficients. (The rate of churchgoers has an almost significant (sign=0.072) effect on the efficiency of churchgoers, this is why we considered it significant.)

Thus, the equation of the two lines there is CHUREFF= 0.3* CHURRA+37.59, and NCHUREFF=50.18 (only the constant is significant). The figure of the model:

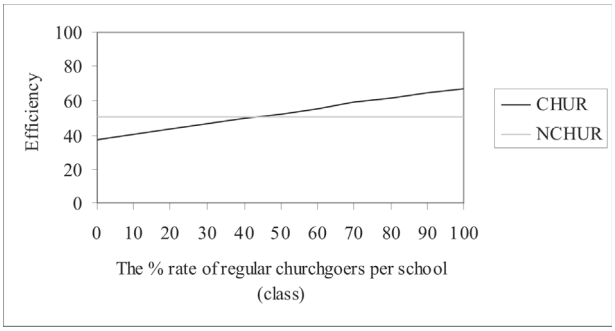

Figure 8. The Presentation of Contextual and Individual Effects with the Davis-method according to the Rate of Churchgoers per School/Class (the two lines show the efficiency of churchgoing and non-churchgoing students).

Note: For the interpretation of the results we mark that the rate of regular churchgoers per school/class was between 0 and 100%. The average was 49.74%.

According to our hypothesis the churchgoing habits of students are of positive effect on efficiency both on individual and group levels, but the advantage of churchgoers will be seen mainly in schools/classes where the number of churchgoing students is high (widening gap, increasing lines). Our results, however, demonstrate that the two lines intersect each other, therefore in the schools/classes that have less student non-churchgoers the churchgoers are evidently more efficient. The turning point is at 40%, exceeding the average value of churchgoing students. At rates higher than this – in accord with our hypothesis – we can trace a higher efficiency at churchgoers. However, contradictory to our hypothesis, the efficiency of those not going to church is not affected by the context.[11]

By including the maintainer variable (i.e. we are dealing with denominational or not a denominational school) – in accord with our hypothesis – the contextual effect disappears, and we can trace the higher efficiency of the students not going to church. (Only the individual effect is present, (and even that is of negative sign), and the two lines become parallel. Consult the Appendix for the regression results in *Table 1.*) Therefore, churchgoing has no positive effect on student efficiency after including the maintainer. According to this, it is the denominational schools (having the great rate of regular churchgoers), where the stimulating effect is a real impact on student efficiency. The background of this can be that the students of denominational schools go to the same church and thus belong to the same school/class community, and they meet every day. In this respect, they are able to help each other much better, encourage each other for planning university application and for passing language exams, which can affect school averages positively, as well.

Our next point is the effect of the strong ties of the students on efficiency. We measured this with three different variables. The first two variables (with which we approached the strong ties) were the student attendance of religious youth groups, and whether the student made his close friends in the religious youth group or in the church community.

Based on the *Tables* (2 and 4) of the Appendix we can see that (contrary to our hypothesis), with this approach of strong ties, there is only individual effect present. If the students attend religious youth groups, and they made their close friends from religious youth groups or the church community, they became more efficient, regardless the rate of these students per school/class. (In Davis's typology it is the case

11 As opposed to Pusztai's 2007 research, churchgoing has a positive contextual effect on the efficiency of students, but only on the efficiency of those regularly attending church. The background of the different results may be that on the one hand the original relationship at Pusztai (the rate of regular churchgoing students per school negatively affects efficiency) was true only in the case of schools in the Partium region. On the other hand, by the use of the Davis-method, we had no opportunity to test a multi-variable model (since we included only one individual and one contextual variable). However, Pusztai examined the joint effect of more (12–13) factors on efficiency. It may be suggested also that since churchgoing in our country generally correlates on the education of parents negatively, we only measure the impact of the lower education of parents on the efficiency, when higher efficiency of non-churchgoing parents can be detected. This, again, draws our attention to the boundaries of the Davis-method, as there is a possibility to include only one contextual and one individual explanatory variable. In a multi-variable model we could include the education of the parents and by filtering it out there would be an opportunity to examine the real effect of churchgoing.

of single individual effect and the figures referring to the tables would show two parallel lines each.[12]) The two variables do not have effect on group level. The reason for this can be that the closeness of the group of friends (emphasized by Coleman) does not necessarily have an effect. Those going to the same class/school are not necessarily the members of the same religious youth group or church community, and besides, they may have made their friends in a former youth group, go to a different group, or do not attend such a group any more. Thus, the group-level effect of the closeness of strong ties cannot prevail.

We approached the strong ties of the students – according to the capabilities of the database – with a third variable, as well. This variable was whether the student's group of friends consists of religious people predominantly, or not. We included this variable for the sake of comparison with a former study of ours (Fényes and Pusztai 2004). Let us see its effect on efficiency:

Table 5. Linear Regression Models on the Efficiency of Students having Religious and Non-religious Close Friends, according to the School (Class) Rate of Students having Religious Close Friends

Dependant variable	FRELEFF B's (SE)	Betas	NFRELEFF B's (SE)	Betas
Constant	35.27**(10.2)		49.4*** (10.2)	
FRELRA	0.39* (0.18)	0.33*	0.05 (0.19)	0.05
R^2	0.11		0.002	

Note: Besides the regression B-coefficients in this table you can find the standard error. In addition, besides both the B's and the Betas we used an * to mark the significance of the coefficients (***=0.1%, **=1% and *=5% levels and in other cases the coefficient was not significant)

For the graphing of the lines we used the unstandardized regression B-coefficients. The equation of the two lines is FRELEFF=0.39*FRELRA+35.27 and NFRELEFF= 49.4 (in the second model, only the constant is significant). The figure of the model:

12 In the case of the second variable we received similar results to the original one by the inclusion of the maintainer variable (see *Appendix, Table 5*.) If we take the first variable into consideration, it appears that with the inclusion of the maintainer variable we encounter the additive crossing case (see Appendix, Table3.). The minor-scale advantage of those attending religious youth groups disappears, and when the rate of those going to religious youth groups rises above 10%, it is the students not going to such groups to become more efficient (we will now skip the presentation of the figure). The slightly higher efficiency of those attending religious youth groups, therefore, was visible because of the sector effect. If we include the maintainer variable, the effect disappears, except for the schools where these students are present in a very small rate (under 10%). (Here we can see the minority–majority effect working and the higher efficiency of those going to religious youth groups can only be shown where they are in large-scale minority. Similarly, if the rate of these students is high – after the inclusion of the maintainer variable –, it primarily increases the efficiency of those not going to religious youth groups: they will experience the stimulating effect, and their school results will improve.)

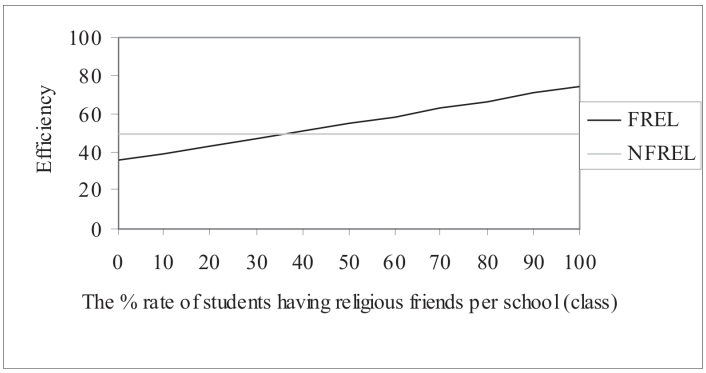

Figure 9. The Presentation of Contextual and Individual Effects with the Davis-method according to the School/Class Rate of Students having Religious Close Friends (the two lines show the efficiency of students with a religious and non-religious group of friends).

Note: For the interpretation of the results we mark that the rate of students having religious close friends per school/class was between 0 and 97.74%. The average was 48.28%.

It is apparent – partly in agreement with our hypothesis – that the students having a religious group of friends are more efficient in the majority of the cases and mostly in the schools where they are in great number. (The strong ties have an effect on individual and contextual level as well; according to the 5a. type of the additive crossing case i.e. the context affects only the efficiency of students with a religious group of friends.)

The difference of the three-variable measurement of strong ties can be caused by the fact that while there was no group-level effect at the first two variables (as the closeness of friends was not valid – see that explanation), here – where we approach the strong ties of students with predominantly religious friends – we can already perceive closeness. The reason is that religious students may develop tight-knit friendships in the class community, regardless of the fact that they attend different religious youth groups or church communities. After the inclusion of the maintainer variable, however, in accord with our hypothesis, the contextual effect disappears and the individual effect appears with a reverse sign: the students with a non-religious group of friends will be more efficient (see *Appendix, Table 6.*) Therefore, it seems that the higher rate of the religious group of friends in denominational schools increases the efficiency of students having religious friends.

These results slightly contradict the results from 2004. There we find the clear additive case of contextual effects. It appeared as the following: the students having non-religious friends intended to study further at university in a greater rate all through (reverse individual effect), and the increasing rate of religious friends in denominational schools enlarged the rate of plans for further studies in both groups to the same degree (contextual effect).[13] Nevertheless, the present results are rather in

13 We accounted for the higher efficiency (plans to study further at university at higher rate) of students having a non-religious group of friends, with the fact that students having religious friends tend to plan studies on college level, as religious values, norms suggest the choice of traditional intellectual career (teacher), and that of assisting professions [social worker, special education worker] (Fényes and Pusztai 2004).

accord with our original hypothesis. The reason for the different results may be the different dependent variable (then the dependent variable was merely the plans to study further at university of the students as opposed to our five-factor efficiency index in this analysis).[14]

Taking everything into consideration, the three variables measuring strong ties affected student efficiency positively. We find more than the fact that the students with such strong ties are more efficient; in certain cases their efficiency is boosted if in the school/class there are lots of students of the like.

Let us now inspect the effect of the religious relationship resources of parents. Our first explanatory variable is the churchgoing habits of parents. This variable may affect student efficiency:

Table 6. Linear Regression Model on the Efficiency of the Children of Churchgoing and Non-churchgoing Parents according to the Rate of Regular Churchgoing Parents per Schools (Classes)

Dependant variable	CHURPEFF B's (SE)	Betas	NCHURPEFF B's (SE)	Betas
Constant	45.48***(9.5)		53.52*** (8.97)	
CHURPRA	0.26(0.22)	0.19	0.05 (0.21)	0.04
R^2	0.036		0.002	

Note: Besides the regression B-coefficients in this table you can find the standard error. In addition, besides both the B's and the Betas we used an * to mark the significance of the coefficients (***=0.1%, **=1% and *=5% levels and in other cases the coefficient was not significant)

We can see that, in this case, only the constants are significant (in a figure we would get two parallel lines), and we can trace a higher efficiency among the children of parents not going to church (this is the case of the single individual effect in Davis's typology, and its sign is negative, in comparison to what we expected.) We can also detect that the rate of churchgoing parents per school/class does not have a contextual effect (the corresponding B's and Betas are not significant), therefore the more frequent emergence of parents going to church does not become a community resource – in this respect, the higher rate of the parents who are regular churchgoers does not increase student efficiency. By including the maintainer variable (see Appendix, Table 7), the results hardly change.[15]

14 It is possible that while the students having religious friends plan their further studies in smaller proportion, their school results are better, they obtain more language exam certificates, and compared to those having non-religious friends, they participate in more subject competitions (these are the additional factors of the efficiency index). Thus the efficiency of this group became higher in this present research. (According to our data the students with a religious group of friends show better results mainly in the grade average, and they take part in subject competitions more frequently. In the case of the other efficiency indicators, they are similar to the students with a non-religious group of friends.)

15 The reason for the results contradictory to our hypothesis may be the fact that we were not able to include the education of the parents in this model. As in Hungary it is usually the low-educated people that go to church more frequently, this can be the very reason for the lower efficiency of their children compared to the efficiency of churchgoers.

Since the explanatory variable was included in the 2004 research, as well, it is possible to compare the results. There the children of non-churchgoing parents were also more efficient, but where the number of churchgoing parents was high, their children were able to catch up (in the field of plans for further education) with the children of parents not attending church. The reason for this may be that in denominational schools – where the number of churchgoing parents is high – the leadership of the school pays much more attention to parents: they organize spiritual retreats for them and the parents then are able to become a real community. Therefore, the positive contextual effect gains more ground. In the denominational schools examined in the 2004 research, if the number of churchgoing parents was high, the student efficiency increased. However, as in this study the schools presented are mixed, this effect disappears.[16]

We approached the strong ties of the parents with the "predominantly closed religious group of friends" variable (as in the 2004 examination). The 2004 results were very similar to our present analysis (for regression results consult Appendix, Tables 8 and 9). In the plain case and after the inclusion of the maintainer variable, our results show neither individual nor contextual effects; these strong ties of the parents – contradictory to our hypothesis – do not affect student efficiency neither on individual nor on group level (the result was the same in 2004 as well).[17]

The negative or non-detectable effect of the relationship resources of the parents (either churchgoing or the predominantly religious group of friends) can be explained with the fact that students nowadays do not really listen to their parents, and their efficiency is rather affected by their own relationship and other resources. Another reason is that the closeness of the relationships among parents – already mentioned and emphasized by Coleman – does not necessarily gain ground. (In our former research (Fényes and Pusztai 2004) we explained this with the high rate of students who live in dorm in that sample: if the number of these students is high, the parents do not necessarily know each other and do not go to the same church or community.)

SUMMARY AND CONCLUSIONS OF THE METHODOLOGY

We will now start the summary with the content results:

Examining the efficiency of students we have shown that the rate of sexes does not have a contextual effect on efficiency, but in accord with our hypothesis, girls are somewhat more efficient than boys.

However, the school/class rate of those having highly educated parents – in accord with our hypothesis – affects student efficiency positively, especially in the case of children with not highly educated parents. According to our results, where the rate of

16 According to this, the great number of churchgoing parents in non-denominational schools may even have affected student efficiency negatively.

17 The results showed that in the case where the maintainer was not included, it was the children of parents without religious friends to become more efficient. After the inclusion of the maintainer, we found the children of parents with religious friends becoming more efficient, however, the effect is rather weak in both cases, and the R-squares are remarkably bad.

highly educated parents is small, it is the children of highly educated parents performing better, but where this rate is high it is the children of not highly educated parents that have better results. This can partly be explained with the minority–majority effect and with the fact that only the most talented children of non-intellectual parents get accepted into elite schools, which increases their efficiency (this is the case of selective migration).

During the measuring of the religious relationship resources of the students we examined churchgoing at first. According to our results, where there are few churchgoers it is the students not going to church being more efficient, while the greater rate of churchgoers brings about the higher efficiency of churchgoers. It is presumably the stimulating power of denominational schools (where the number of churchgoers is high) that affects the efficiency of churchgoers. In accord with our hypothesis, by the inclusion of the maintainer, the contextual effect disappears, and we can trace the higher efficiency of those not going to church all through.

We approached the strong (and closed) religious ties of the students with three different variables. On a major scale – in accord with our hypothesis – the variables measuring strong ties (the attendance of religious youth groups, the friendships made in religious youth groups and church communities and finally the religious close friends) affected student efficiency positively. Not only are the students with such strong ties more efficient, but in certain cases their efficiency is boosted if their number in the school/class is high.

The religious relationship resources of the parents – churchgoing or the religious group of friends – did not have a positive effect on student efficiency, neither on individual nor on group level. One of the reasons can be that the students do not listen to their parents and rather lean on their own resources. In addition, the closeness of the relationship of parents (emphasized by Coleman) does not necessarily gain ground.

Our analysis makes us draw a lesson related to methodology, as well. It points out that it is worth-while to approach sociological questions with contextual analysis, and that we can learn more by it than with a simple regression model. Nevertheless, it highlights the handicap of the Davis-method which is only able to handle dichotomous variables and one individual and one contextual variable at a time. (This may be the reason for the low R2 indexes, as well.) In this paper, beside some other explanatory variables the need for examining the role of family background emerged at the analysis of student efficiency. Unfortunately, this problem cannot be solved with the Davis-method. The elimination of these deficiencies can be executed with the so-called multi-level modeling methods, where other data-analytic programs are applied (HML, VARCL, ML, MLwiN). However, the use of these methods exceeds the boundaries of the present study.

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APPENDIX

Table 1. Linear Regression Model on the Efficiency of Regular and Irregular Churchgoers, according to the Rate of Regular Churchgoers per School (Class) after the Inclusion of the School Maintainer Variable

Dependant variable:	CHUREFF B's (SE)	Betas	NCHUREFF B's (SE)	Betas
Constans	39.03**(9.93)		53.31*** (10.93)	
CHURRA	0.3 (0.24)	0.3	0.13 (0.26)	0.13
MAINT	-1.04 (14.56)	-0.02	-8.6 (14.98)	-0.15
R^2	0.08		0.012	

Note: Besides the regression B-coefficients in this table you can find the standard error. In addition, besides both the B's and the Betas we used an * to mark the significance of the coefficients (***=0.1%, **=1% and *=5% levels and in other cases the coefficient was not significant).

Table 2. Linear Regression Model on the Efficiency of those attending and not attending Religious Youth Groups, according to the School (Class) Rate of Students attending Religious Youth Groups

Dependant variable	RELYGEFF B's (SE)	Betas	NRELYGEFF B's (SE)	Betas
Constant	47.63***(9.18)		44.03*** (6.94)	
RELYGRA	0.35 (0.22)	0.26	0.26 (0.17)	0.24
R^2	0.07		0.059	

Note: Besides the regression B-coefficients in this table you can find the standard error. In addition, besides both the B's and the Betas we used an * to mark the significance of the coefficients (***=0.1%, **=1% and *=5% levels and in other cases the coefficient was not significant).

Table 3. Linear Regression Model on the Efficiency of those attending and not attending Religious Youth Groups, according to the School (Class) Rate of Students attending Religious Youth Groups, after the Inclusion of the School Maintainer Variable

Dependant variable:	RELYGEFF B's (SE)	Betas	NRELYGEFF B's (SE)	Betas
Constans	54.42***(10.12)		48.02*** (7.82)	
RELYGRA	0.35(0.29)	0.27	0.5 (0.24)*	0.46*
MAINT	-7.44(14.25)	-0.118	- 20.41(11.84)	-0.372
R^2	0.047		0.124	

Note: Besides the regression B-coefficients in this table you can find the standard error. In addition, besides both the B's and the Betas we used an * to mark the significance of the coefficients (***=0.1%, **=1% and *=5% levels and in other cases the coefficient was not significant).

Table 4. Linear Regression Models on the Efficiency of Students making or not making Friends from Religious Youth Groups or the Church Community, according to the School (Class) Rate of Students having made Friends in Religious Youth Groups or the Church Community

Dependant variable	RELCHEFF B's (SE)	Betas	NRELCHEFF B-k (SE)	Betas
Constant	67.97***(9.48)		47.1*** (7.2)	
RELCHRA	-0.13 (0.42)	-0.052	0.36 (0.32)	0.18
R^2	0.003		0.031	

Note: Besides the regression B-coefficients in this table you can find the standard error. In addition, besides both the B's and the Betas we used an * to mark the significance of the coefficients (***=0.1%, **=1% and *=5% levels and in other cases the coefficient was not significant).

Table 5. Linear Regression Models on the Efficiency of Students making or not making Friends from Religious Youth Groups or the Church Community, according to the School (Class) Rate of Students having made Friends in Religious Youth Groups or the Church Community, after the Inclusion of the School Maintainer Variable

Dependant variable	RELCHEFF B's (SE)	Betas	NRELCHEFF B-k (SE)	Betas
Constant	70.93***(10.8)		48.96*** (8.65)	
RELCHRA	-0.07(0.46)	-0.03	0.42 (0.38)	0.2
MAINT	-2.95(11.52)	-0.05	-2.03(9.67)	-0.04
R^2	0.004		0.036	

Note: Besides the regression B-coefficients in this table you can find the standard error. In addition, besides both the B's and the Betas we used an * to mark the significance of the coefficients (***=0.1%, **=1% and *=5% levels and in other cases the coefficient was not significant).

Table 6. Linear Regression Models on the Efficiency of those having and those not having Religious Friends, according to the School (Class) Rate of Students having Religious Friends, after the Inclusion of the School Maintainer Variable

Dependant variable	FRELEFF B's (SE)	Betas	NFRELEFF B's (SE)	Betas
Constant	45.11**(12.22)		52.22*** (12.01)	
FRELRA	0.323 (0.26)	0.26	0.09 (0.26)	0.08
MAINT	-5.945(11.9)	-0.1	-5.35 (11.91)	-0.09
R^2	0.049		0.006	

Note: Besides the regression B-coefficients in this table you can find the standard error. In addition, besides both the B's and the Betas we used an * to mark the significance of the coefficients (***=0.1%, **=1% and *=5% levels and in other cases the coefficient was not significant).

Table 7. Linear Regression Model on the Efficiency of the Children of Churchgoing and Non-churchgoing Parents, according to the School (Class) Rate of Regular Churchgoing Parents, after the Inclusion of the School Maintainer Variable

Dependant variable	CHURPEFF B-k (SE)	Betas	NCHURPEFF B-k (SE)	Betas
Constant	52.47***(10.49)		58.94*** (10.78)	
CHURPRA	0.05 (0.28)	0.04	0.04 (0.29)	0.032
MAINT	6.17 (10.73)	0.12	-5.3 (11.02)	-0.1
R^2	0.02		0.007	

Note: Besides the regression B-coefficients in this table you can find the standard error. In addition, besides both the B's and the Betas we used an * to mark the significance of the coefficients (***=0.1%, **=1% and *=5% levels and in other cases the coefficient was not significant).

Table 8. Linear Regression Models on the Efficiency of Children having Parents with Religious and Non-religious Close Friends, according to the School (Class) Rate of Parents having Religious Friends

Dependant variable:	FRELPEFF B's (SE)	Betas	NFRELPEFF B's (SE)	Betas
Constant	57.05***(10.08)		59.23*** (9.99)	
FRELPRA	-0.02 (0.21)	-0.002	-0.12 (0.21)	-0.09
R^2	0.000		0.009	

Note: Besides the regression B-coefficients in this table you can find the standard error. In addition, besides both the B's and the Betas we used an * to mark the significance of the coefficients (***=0.1%, **=1% and *=5% levels and in other cases the coefficient was not significant).

Table 9. Linear Regression Models on the Efficiency of Children having Parents with Religious and Non-religious Close Friends, according to the School (Class) Rate of Parents having Religious Friends, after the Inclusion of the School Maintainer Variable

Dependant variable	FRELPEFF B's (SE)	Betas	NFRELPEFF B's (SE)	Betas
Constant	70.87***(11.56)		67.15*** (11.89)	
FRELPRA	-0.37 (0.27)	-0.27	-0.27 (0.27)	-0.19
MAINT	10.95 (10.39)	0.2	3.24 (10.68)	0.06
R^2	0.061		0.03	

Note: Besides the regression B-coefficients in this table you can find the standard error. In addition, besides both the B's and the Betas we used an * to mark the significance of the coefficients (***=0.1%, **=1% and *=5% levels and in other cases the coefficient was not significant).