

# First-generation Students at Universities from the Aspect of Achievement, Motivation and Integration

DOI: 10.5613/rzs.52.1.3

UDC 37.015.3

378.014-057.875

Original Research Article

Received: 24 March 2021

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## ABSTRACT

This paper describes the features of first-generation students from the perspectives of achievement, social integration and motivation. The scholarly literature highlights the special circumstances of these undergraduates and points out the systemic nature of their disadvantages. The database which was used during this analysis contains data from a large research university in Hungary (2019, N = 810). The empirical results show that first-generation students do not exhibit a lower level of achievement. However, they display special patterns when it comes to motivation toward higher education. If we compare first-generation students' to students from highly educated backgrounds in terms of attitudes, we also see that their social integration among peers on the campus is not diverse. Finally, the results of the linear regression model have demonstrated that students with a high parental educational level have advantages. These results also help explain certain features of undergraduates from heterogeneous backgrounds, who seem to be more similar to first-generation students than to students from highly educated backgrounds. In conclusion, the findings of this study contribute to further understanding of the links by identifying the elements of first-generation students' disadvantages (especially in the field of foreign language knowledge) and revealing that students' efficiency is embedded in a complex way in socio-demographic and institutional elements, as well as in motivation. These findings suggest that the post-massification higher education system still contains hidden inequalities.

Key words: first-generation students, achievement, motivation, integration, higher education

## 1. INTRODUCTION

Obtaining a degree can be the first step along the path of social mobility because a degree can help first-generation students achieve a higher position in the social structure. Therefore, universities play a key role in this process (Payne, 2012). However, Haveman and Smeeding (2006) pointed out that the higher education system does not promote equality efficiently, and Christie (2016) revealed that the expansion of education cannot hinder the transmission of advantages from one generation to another in the higher social classes. This issue is especially relevant because the upper segment of universities has remained closed since 2010 (Bathmaker, 2021) and the drop-out rate of first-generation students increased in Great Britain as well as in the United States (English, 2012). Similar phenomena can also be seen in Eastern Europe (Burlutskaia, 2014; Shkaratan and Iasterbov, 2012).

At the same time, not only the access but the whole spectrum of their campus presence is embedded in inequalities: the level of integration, their motivation for learning and, consequently, their level of academic efficiency. Academic efficiency has a key role because it is closely linked to the opportunity for a subsequent academic career or success in the labour market. Therefore, in the context of Hungarian society, this paper focuses on the phenomenon of first-generation students' academic efficiency and the factors behind their disadvantages in this field. The empirical analysis was carried out at a research university in Hungary. A quantitative approach was used in the study. The research aims to uncover the effect of a broad range of variables because success is embedded in several factors: support from academics, peer networks, motivation, sex, etc. (Osman, Ydhag and Månsson, 2021). Social integration was mapped into three fields: peer network 'on campus', peer network 'off campus' and networks involving lecturers. In the case of academic efficiency, an index was created, and its mean was compared across different subsamples by parental education (first-generation students, highly educated backgrounds and undergraduates with heterogeneous backgrounds). In the following, we show descriptive statistics for all variables and index types, and explain how the indices were created. The results of the exploratory factor analysis based on the items of motivations for further studies are also displayed. Cross tabulation and the Kruskal–Wallis test with pairwise comparisons were used to reveal relationships between the variables of the regression model with special attention to the relationship between the parents' educational background and other variables. Finally, linear regression analysis was carried out to reveal the effects of previously used variables on students' academic efficiency. The novelty of the analysis lies in the complex approach to academic efficiency, a wide range of independent variables (including the field of study) and the application of the category

to students from heterogeneous backgrounds (where one parent has a degree and the other does not). We set out to identify the factors behind students' academic efficiency but our most significant question is whether low parental education level affects academic efficiency.

## 2. INEQUALITIES IN THE PROCESS OF STUDENTS' SOCIALISATION

Inequalities can appear in several forms in the system of higher education. Universities are special organisations which prepare students for professions and presence in the labour market but, at the same time, constitute a specific space for learning and research activities. So, successful integration into a university can be mainly described by the level of academic efficiency. If we analyse the process of students' socialisation according to Weidman (2006), we can see that the students' social background is a very important input variable in the model. Social background can shape the elements of campus presence (learning, extra-curricular activities, etc.), the patterns of integration, and finally, the output of the process. In this complex model, the students' background is only one, albeit important, element. Naturally, the organisational framework may differ in higher education as the requirements of access, the size of the institution (Tinto, 1975), the institutional culture (Tierney and Lanford, 2018) and the types of education programmes create specific circumstances for this process. From the perspective of sociology, the inequalities relating to this process can be analysed through the concept of different forms of capital, which is a very frequently used framework when it comes to first-generation students because the socio-cultural background and campus presence can be described using the ideas of cultural, economic and social capital (e.g., Bourdieu, 2018). This analysis covers not only institutional but also capital-related variables of the students' socialisation (relationship with lecturers, peer network, economic capital, parental education). Since we cannot analyse the final stage of this process, academic efficiency is regarded as an indicator of efficient integration.

Academic efficiency is embedded in not only socio-cultural and institutional variables but also the forms of motivation. The patterns of students' motivation cannot be described with only academic and vocational goals. Bogler and Somech (2002) identified three bases of students' motivation: instrumental, academic and collegiate. Students choose rationally between these 'strategies'. The type of motivation is closely linked to different forms of integration (relationship with peers, lecturers, faculty). Since, in some cases, higher academic efficiency is not the result of the attitude, we may even observe negative relationships. Some scholars highlighted

the key role of intrinsic motivation in academic success (De Clercq et al., 2013; Simons, Dewitte and Lens, 2004), but Clark et al. (2014) underscored that not all empirical findings had verified this relationship and the effect of extrinsic motivation is less consistent. If we analyse the social embeddedness of motivation, we can see that the source of aspirations may differ: for first-generation students, the most important goal is to obtain a higher position in society, and a degree is a useful tool for achieving it (Reay, 2003). To sum up, the whole process of socialisation varies by social background, and several correlations can be found between institutional and socio-cultural variables.

### 3. THE CHARACTERISTICS OF FIRST-GENERATION STUDENTS

#### 3.1. International empirical findings

Previous empirical research has revealed the disadvantageous situation faced by first-generation students in many areas of campus life. Rubin and Wright (2017) emphasised the lower level of institutional and social integration and tried to explain this feature by their financial situation and commitments in other fields (labour market, family etc.). The diverse lifestyle of these students means that they cannot exploit their resources during the university years as efficiently as their peers and cannot convert them, either (Laemmli, 2011). Moreover, taking part in free-time or extracurricular activities on campus may not be free of charge. Empirical results have shown that the balance between paid work and learning is a more significant challenge for first-generation students (Pratt et al., 2019), and this balance is a constraint rather than a compulsion or a choice of a lifestyle (Moreau and Leathwood, 2006). If we analyse the relationships between lecturers and other students, among first-generation students we can find fewer such contacts (Pike and Kuh, 2005).

The fact that first-generation students' academic efficiency is lower than that of undergraduates from a favourable parental background has been verified by various analyses (Grayson, 1997; Lohfink and Paulsen, 2005; Palbusa and Gauvain, 2017; Strayhorn, 2007 Ting, 2003). In addition, their attitudes are different, they remain closer to performance-avoiding behaviour (Jury, Smeding and Darnon, 2015), and their aspirations are lower (McCarron and Inkelas, 2006). First-generation students are more likely to drop out in the first semester (Ishitani, 2006).

Several analyses have tried to reveal the explanations of their disadvantages and key factors of their possible success. Prospero and Vohra-Gupta (2014) highlighted that the shaping factors of GPA were different in the subsample of

first- and non-first-generation students. Nevertheless, academic integration had a strong effect in the first subsample. Grayson (1997) pointed out that a high level of 'on-campus' activities could raise general marks regardless of parental education, and Oliveri (2019) verified a similar relationship.

### 3.2. The case of Hungary

The analysis of first-generation students in Hungary must also focus on the wider social and educational circumstances. On the one hand, the level of social mobility in the country is low (Ludwinek et al., 2017), and on the other, the educational system is selective, while resilience is also generally low (Agasisti et al., 2018). So young people from a lower parental educational background are less likely to reach the universities in the country (OECD, 2012).

The mass higher education system in Hungary started to emerge in the 1990s (Kozma, 2004; Hrubos, 2014). This change can be explained by the national education policy, the founding of institutions and the increased social demand for higher education. The expansion increased the proportion of non-traditional and first-generation students – especially in the case of part-time programmes. At the same time, specific segments of higher education (study programmes with high prestige, e.g., law or medicine) have remained relatively closed (Szabó, 2015). In the last decade, the expansion has appeared to stop, although explanations for this occurrence are very complex and not clear-cut. First, the changes could be due to the demographic situation and the decreasing population of young people. Second, it could be caused by the education policy. Some regulations adopted after 2010 may have intensified the restraints present in the higher education system and across society, such as the regulation of tuition fees, the transformation of the enrolment process, etc. According to the Hungarian Youth Research 2016 database, the proportion of first-generation students in the full-time student population is 54%, which is lower compared to the earlier results of 2012 (Bocsi, 2020). Few research projects have attempted to reveal the circumstances of first-generation students in the country. The main directions of analysis are the situation of students of Roma origin and students from a disadvantageous background. The proportion of the former group among students has increased over the last decade due to the supportive educational policy, while the proportion of the latter group seems to be on the decline (Berlinger and Megyeri, 2015).

Empirical research projects generally focus on a limited number of independent variables. This analysis covers a wide range of variables at the same time, using a statistical model which can isolate real effects. By analysing the motivation for further studies, we also employ the perspective of another discipline. The reason for

separating the parents' high educational level into two categories is our intention to highlight the importance of a more nuanced approach to the parental education level.

### 3.3. Hypotheses

As mentioned above, hardly any analysis has addressed the characteristics of heterogeneous parental backgrounds as research projects generally use two categories (first-generation students, students with highly educated parents). Taking into account this fact and earlier empirical findings, our research questions are the following:

R1. In which fields (different forms of integration, academic efficiency, economic capital, motivation for further studies) can disadvantages for first-generation students be observed?

R2. Do students with heterogeneous backgrounds display any specific characteristics regarding motivation for further studies, integration or academic efficiency? Or is this a transitional category between first-generation students and students with highly educated parents?

Our hypotheses, based on the literature, are the following:

H1. We suppose there is a lower level of integration into 'on-campus' networks (relationships with faculty and peer groups) among first-generation students, in agreement with Rubin and Wright (2017), Pike and Kuh (2005), Terenzini et al. (1996) and Stuber (2011). We compare first-generation students' intensity of relationships with that of students with highly educated parents as well as undergraduates from heterogeneous backgrounds.

H2. We suppose that first-generation students achieve a higher average rating for factors containing instrumental and extrinsic motivations to continue further education (these factors are the following: status-oriented and material, instrumental), in accordance with the theoretical background on motivation for further studies (Reay, 2003; Cheung et al., 2001).

H3. We can identify a lower level of academic efficiency among first-generation students, in accordance with Engle and Tinto (2008), Strayhorn (2007, Grayson (1997), Lohfink and Paulsen (2005), Palbusa and Gauvain (2017) and Ting (2003) if we compare them with students from highly educated and heterogeneous backgrounds.

H4. A low level of parental education has a negative effect on students' academic efficiency in the regression model, in accordance with Cooper (2013), Grayson (1997), Jury et al. (2015) and De Clercq et al. (2013).

Our first research question and its associated H1 and H2 are related to the situation of first-generation students. The goal of our second research question and its associated hypotheses is to reveal the special features of students with heterogeneous backgrounds. These questions and hypotheses are assessed using the results of the Kruskal–Wallis test. H4, furthermore, concerns the factors which can influence students' efficiency in higher education and is tested by a linear regression model.

## 4. METHOD

### 4.1. Location and the sample

The database consists of a large-sample student survey (N = 810), conducted in the academic year 2018/19<sup>1</sup>. The title of the research project was 'The Role of Social and Organisational Factors in Student Attrition'. Henceforward, we refer to this database as the PERSIST 2019 database. The survey was carried out at one of the largest universities in Hungary. The sample consists of full-time undergraduate students in their second year and of second-year or third-year students from undivided programmes which offer a master's degree. We used quota sampling and the sample is representative with respect to faculty, field of study and form of funding. We used an Evasys-type paper-based questionnaire, and teacher education students administered the survey and assisted the respondents. After scanning the completed questionnaires, we created an SPSS database. The examined university, located in one of the largest cities in Hungary, consists of fourteen faculties covering almost all academic disciplines. Generally, each faculty is focussed on one discipline, but there are also some special cases and overlaps.

### 4.2. Examined variables

The variables used and analysed were the following: sex, economic capital (measured by an index of possession of consumer goods in the family,<sup>2</sup> type of settlement (with county seats, smaller towns and villages), study programme level (bachelor's or combined bachelor's and master's), regular and paid work (at least once a

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<sup>1</sup> The data was collected by the CHERD-Hungary research group, of which all authors are members.

<sup>2</sup> Index components: Does the family have its own apartment or house, a car which is five years old or newer, a flat-screen television, a personal computer or laptop with broadband internet access at home, a tablet or e-book reader, mobile internet (on the phone or computer), a dishwasher, an air-conditioner, and a smartphone? The mean of the index was 6.71 (*SD* = 1.58). The lowest value was 1, and the highest was 9.

month). Furthermore, the students answered a question as to whether they were studying in the programme they had originally chosen or not (with a dichotomous variable). Based on the data on parental education, three sub-samples were created (first-generation students, students from highly educated backgrounds and students with heterogeneous backgrounds ( $N = 360, 221$  and  $186$ , respectively). We used ten fields of study (agronomy, arts, engineering, informatics, science, law, medicine, economics, social sciences and teacher training).

The level of integration was investigated with three question blocks. The first contained items about lecturers, the second about the peer-group networks 'on campus' and the third about the relationships 'off campus'. Three indices were created with the number of relationships (none, one, and more than one, with values of 1, 2 and 3, respectively).<sup>3</sup>

Motivation for further studies was analysed with a block of questions containing 13 items<sup>4</sup> which were valued on a four-grade scale (fully disagree, partly disagree, partly agree, fully agree,  $\alpha = 0.703$ ). Exploratory factor analysis was carried out on these items to uncover the hidden structure behind them. The factors can be interpreted well. The first factor includes a well-paid job, a prestigious profession and a better chance in the labour market. This is a utilitarian attitude towards further studies, which is embedded in extrinsic motivation (Status-oriented and material) The Intrinsic factor includes the knowledge and vocation items, so for this factor, self-fulfilment plays a key role. The third factor mixes elements which belong to the phenomenon of dilatory behaviour, wider opportunities and the possibility of moving to the upper social class (Dilatory behaviour). The Instrumental factor includes two elements which push the students towards universities: firstly, the aim of achieving social mobility and, secondly, the pressure of the workplace. The four

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<sup>3</sup> Index components in the case of the lecturer: there is a lecturer who talks to you about academic issues outside the classroom, about other issues, about literature and fine arts, about public issues, about your private problems, about your future, about lifestyle and sport, who is in frequent e-mail contact with you and who takes an interest in your career. Items in the case of peer groups (on- and off-campus): whether there is a person who talks to you about your learning problems, private problems, future plans, academic issues, literature or culture or public issues, fine arts, who spends her/his free time with you, who looks after you if you are sick, from whom you could borrow a book or study materials, someone you study together with, and you do sports with. The mean of the index was 2.42 ( $SD = 2.12$ ). The lowest value was 0, and the highest was 13.

<sup>4</sup> Question block components: to find a well-paid job, to have a prestigious profession, favourable location of the higher education institution, to advance my knowledge, to find my vocation, because it is easier to find employment with a degree, I did not want to work yet, to build a wide range of relationships, to follow the family tradition, I can afford it financially, I do not have to pay tuition, it was a requirement for my workplace, the hope of social mobility and breaking loose from my environment.



factors explained 60.9% of the total variance (see Table 1). The patterns are presented in Table 2.

Table 1. *Factors of motivation for further studies: initial eigenvalues, percentages of explained variance and cumulative percentages in the factor analyses*

Factor	Eigenvalues	Percentages of explained variance	Cumulative percentages
Status-oriented and material	2.548	23.162	23.162
Intrinsic	1.705	15.498	38.661
Dilatory behaviour	1.369	12.449	51.110
Instrumental	1.079	9.806	60.916

Table 2. *Results of an Exploratory Factor Analysis of motivation for further studies (factor loadings)*

	Status-oriented and material	Intrinsic	Dilatory behaviour	Instrumental
To find a well-paid job.	<b>0.907</b>	-0.091	0.054	0.030
To have a prestigious profession.	<b>0.611</b>	0.214	0.050	0.098
To advance my knowledge.	0.132	<b>0.</b>	0.011	0.047
To find my vocation.	0.097	<b>0.689</b>	-0.014	0.102
Because it is easier to find employment with a degree.	<b>0.392</b>	0.203	0.159	0.110
I did not want to work yet.	0.065	-0.047	<b>0.444</b>	0.160
To follow the family tradition.	0.066	-0.126	<b>0.460</b>	0.173
I can afford it financially.	0.126	0.107	<b>0.705</b>	-0.088
I do not have to pay tuition.	-0.018	0.171	<b>0.443</b>	0.257
It was a requirement for my workplace.	0.026	-0.007	0.220	<b>0.584</b>
The hope of social mobility and breaking loose from my environment.	0.159	0.157	0.074	<b>0.472</b>

Note.  $N = \text{min. } 752$  per row. The extraction method was the maximum likelihood method with varimax rotation.  $KMO = .657$ . Factor loadings above .30 are in bold. The value of explained variance was 41.972%.

Academic efficiency was measured comprehensively in this research project. The block of questions that revealed this issue includes 19 items.<sup>5</sup> These items contain elements in the field of academic activities, scholarships, knowledge of languages and memberships or positions within the university. The values of Cronbach's alpha were higher than 0.7 for each question block ('off-campus' network, 'on-campus' network, relationship with lecturers, academic efficiency and motivation for further studies, economic capital). The scales used in the study (academic efficiency, motivation for further studies, economic capital and different types of integration) were developed by the CHERD-Hungary research group.

### 4.3. Data Analysis

The first part of the results contains the description of first-generation students with the help of the following variables: sex, type of settlement, economic capital, study programme level, fields of study, frequency of paid work and whether students attend the programme that they originally chose or not. The second part includes the comparison of the three subsamples (first-generation students, students from highly educated backgrounds, students with heterogeneous backgrounds) with respect to integration into campus, motivation for further studies and academic efficiency. The Kruskal–Wallis test was used for the comparison of these indices due to the result of the normality test (the Kolmogorov–Smirnov test and the Shapiro–Wilk test) and the number of independent variables. Among the items of motivation for further studies, factors were identified through explanatory factor analysis. The last part of the analysis contains a linear regression model with all previously used variables as independent variables and the index of academic efficiency as the dependent variable. In sum, this model provides an answer to the question of what factors shape the index of academic efficiency.

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<sup>5</sup> The items of academic efficiency were the following: I have been a member of a research group at the university, I have written a thesis for the Academic Students' Associations Conference, I have written a thesis for the National Academic Students' Association Conference, I have given a presentation at another conference, I have been an instructor at the university, I have an intermediate language exam, I have an advanced language exam, I have a CV in Hungarian and in another foreign language, I have been the leader of my class at the university, I have already written an academic article, I have won a scholarship in the field of sports, I have won a scholarship in the field of fine arts, I have won an intern scholarship, I have a project of my own (programme, invention etc.), I have been a member of a talent nurturing programme, I have been a member of a college for advanced studies, I have at least once reached the highest amount of scholarship and I am planning to take a PhD degree. The mean of this index was 2.42 ( $SD = 2.127$ ). 19 items were used, the maximum value was 13, and the minimum was 0 in the whole sample.

#### 4.4. Participants

The proportion of men in the university sample was 41.70%. Of the total sample, 36.23% come from the capital city or county seats, 40.40% from a smaller town and 23.35% from villages. Most students were born in 1997 or 1998, their mean age being 23 years. Most students attend bachelor's degree programmes (66.33%) while the others study in undivided programmes, which essentially combine bachelor's and master's degree education (in the fields of teacher training, law or medicine). If we create an index from consumer goods data, the value is 6.71 ( $SD = 1.58$ , the maximum value is 9). Of the total respondents, 80.05% said that they had succeeded in obtaining a place on the course they had originally chosen. Undergraduates from ten fields of study were interviewed through a questionnaire. The lowest proportions were in science courses (46 people) and social sciences courses (46 people), with most students studying medicine (161) and economics (116). The distribution of the fields of study is the following: agronomy (7.1%), arts (7.1%), economics (14.4%), informatics (6.6%), law (6.1%), engineering (13.9%), medicine (20%), teacher training (11.52%), social sciences (5.9%) and science (5.7%). Naturally, the field of study is related to the specialisation of the given faculty but there are several special cases: social pedagogy (social sciences) belongs to the Faculty of Education for Children and Special Educational Needs, four faculties offer study programmes in the field of medicine (but one of them also educates social worker students), the Faculty of Economics offers study programmes in the field of agronomy etc. So, this research used only the variable of 'field of study programme' – in this way, the frequencies of cells are higher as well. Of the respondents, 32.74% said that they did regular and paid work at least once a month; 96.4% reported being Hungarian, so ethnic minority was not used as an independent variable.

The proportion of first-generation students is 44.70%. According to the Hungarian Youth Research database (Bocsi, 2020), this proportion is lower compared to full-time students in 2016. The proportion of mothers with a degree is 43.90%; for fathers, it is 33.50%. The proportion of parents with a primary school education is below 4%, so higher education is almost inaccessible for young people from this segment of society. The mothers' education levels were distributed as follows: 3.2% primary school, 13.7% vocational school, 18.6% vocational school with a secondary school leaving certificate, 17.5% secondary school leaving certificate, 21.9% college, 22% university and 0.4% PhD, 2.7% missing or other. The fathers' education levels were 0.1% below primary school, 3.6% primary school, 24% vocational school, 22.9% vocational school with a secondary school leaving certificate,

10.7% secondary school leaving certificate, 12.4% college, 22.1% university, 1% PhD, 3.2% missing or other.

## 5. RESULTS

First-generation students are overrepresented at the Bachelor's level ( $X^2(2, N = 767) = 16.507, p < .05$ ), in the subsample of women ( $X^2(2, N = 754) = 10.002, p < .05$ ) and among students from villages ( $X^2(4, N = 761) = 44.252, p < .05$ ). They are also more likely to do paid work at least once a week ( $X^2(2, N = 759) = 35.236, p < .05$ ). First-generation students tend to choose programmes in the fields of teacher training and arts, and they have a lower chance of accessing programmes in law and medicine ( $X^2(18, N = 748) = 47.153, p < .05$ ). They also have a lower chance of attending the programme that they originally chose ( $X^2(2, N = 759) = 8.164, p < .05$ ).

We describe social integration from three different perspectives: relationships with lecturers, 'on-campus' networks, and 'off-campus' networks. The maximum values of the indices were 27, 30 and 30, respectively. The means were 12.11 ( $SD = 3.62$ ), 24.49 ( $SD = 2.51$ ) and 25.20 ( $SD = 2.91$ ) – so, 'off-campus' networks are to some extent wider than 'on-campus' relationships. The mean of the academic efficiency index was 2.42 ( $SD = 2.13$ ), with a maximum value of 13 and a minimum of 0. The mean of the economic capital index was 6.71 ( $SD = 1.58$ ; maximum value: 9, minimum value: 1). We used the Kruskal–Wallis test with pairwise comparisons to analyse the differences between the three subsamples (Table 3 and Table 4).

Table 3. *Means of indices of economic capital, academic efficiency, integration and motivations for further studies in the subsamples (Kruskal–Wallis test,  $p < 0.005$ )<sup>6</sup>*

	Means			Kruskal–Wallis test
	First-generation students	Students with heterogeneous backgrounds	Students from highly educated backgrounds	p
Economic capital	6.15	6.85	7.56	0.000***
Achievement	2.25	2.25	2.76	NS
Relationships with lecturers	11.88	12.42	12.25	NS
'On-campus' relationships	24.66	24.49	24.28	NS
'Off-campus' network	25.48	25.45	24.63	0.003**
Status-oriented and material motivation	0.01	-0.18	0.10	0.023*
Intrinsic motivation	-0.03	0.06	0.01	NS
Dilatory behaviour motivation	-0.16	-0.04	0.30	0.000***
Instrumental motivation	0.06	-0.12	0.01	NS

Table 4. *Results of pairwise comparisons in the subsamples ( $p < 0.005$ )*

	p first-generation students – heterogeneous backgrounds	p first-generation students – students from highly educated backgrounds	p heterogeneous backgrounds – students from highly educated backgrounds
Economic capital	0.000***	0.000***	0.000***
'Off-campus' network	NS	0.007**	0.008**
Status-oriented and material motivation	NS	NS	0.020*
Dilatory behaviour motivation	NS	0.000***	0.000***

Note.  $N = \text{min. } 691$  per row. \* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$ .

<sup>6</sup> Economic capital:  $F(2,689) = 57.69$ ,  $p = .000$ ; 'Off-campus' network:  $F(2,691) = 5.89$ ,  $p = .003$ , academic efficiency:  $F(2,588) = 3.47$ ,  $p = .032$ ; status-oriented and material motivation:  $F(2,688) = 4.65$ ,  $p = .010$ ; dilatory behaviour motivation:  $F(2,688) = 21.55$ ,  $p = .000$ ; instrumental motivation:  $F(2,688) = 3.49$ ,  $p = .031$ .

Concerning economic capital, we can detect that first-generation students are in a disadvantageous situation, while students from highly educated backgrounds hold the most favourable position. No significant differences can be found regarding academic efficiency, relationship with lecturers and 'on-campus' network, but the external embeddedness of first-generation students and undergraduates with heterogeneous backgrounds seems to be stronger. Concerning the motivations of further studies, two significant relationships are found (for status-oriented and material motivation and dilatory behaviour), but no significant differences are observed between first-generation students and students with heterogeneous backgrounds. These attitudes are rather typical of students from highly educated backgrounds. We find significant differences in parental education level with respect to the intrinsic and instrumental motivations of further studies.

The analysis of the academic efficiency items reveals several significant relationships, namely for an intermediate language exam ( $X^2(2, N = 758) = 12.612, p < .05$ ), an advanced language exam ( $X^2(2, N = 754) = 14.150, p < .05$ ), a CV in a foreign language ( $X^2(2, N = 759) = 8.157, p < .05$ ) and the following two items: "I have at least once reached the highest amount of scholarship" ( $X^2(2, N = 756) = 7.960, p < .05$ ) and 'I am planning to obtain a PhD degree' ( $X^2(2, N = 748) = 8.173, p < .05$ ). Based on adjusted residuals in each cell (adj. res.  $\geq 2$ ), advantages for students from highly educated backgrounds can be identified when it comes to intermediate and advanced language exams, CV in a foreign language and the planning of obtaining a PhD degree. First-generation students are underrepresented in most components. The subsample of students with heterogeneous backgrounds stands out in one specific feature: they are the least likely to receive the highest amount of scholarship. The results reveal that students from highly educated backgrounds are in an advantageous situation in several components.

### 5.1. Factors behind academic efficiency

This part of the analysis includes a linear regression model. The dependent variable is the index of academic efficiency while the independent variables are the socio-demographic variables (indices of objective economic capital, sex, and type of settlement), study programme level (BA/BSc or combined bachelor's and master's degree programme), regular and paid work, admission to the originally chosen degree programme, and parental education level with the three subsamples. The model also includes the fields of study, the factors identified earlier and the indices of social integration. The factors and indices were used as continuous variables, whereas sex, study programme level, regular and paid work, and originally chosen programme were used as dichotomous variables. In other cases (type of settle-

ment, parental education level, fields of study), we created dummy variables with reference categories (these categories were the following: smaller town, students with heterogeneous backgrounds and teacher training). The results are presented in Table 5.

Table 5. *Findings of the academic efficiency regression model*

	<i>B</i>	<i>SE</i>	$\beta$	<i>t</i>	<i>p</i>
Constant	<b>-4.296</b>	<b>1.453</b>	-	<b>-2.957</b>	<b>.003**</b>
<i>Socio-economic and institutional variables</i>					
Sex (male = 1, female = 0)	<b>0.423</b>	<b>0.205</b>	<b>-0.096</b>	<b>2.066</b>	<b>.039*</b>
Objective economic situation (with index)	0.021	0.066	0.016	0.325	.745
Admission to the originally chosen degree programme (yes = 0, no = 1)	0.165	0.240	0.031	0.686	.493
Regular and paid work (yes = 0, no = 1)	0.349	0.205	0.078	1.659	.098
Study programme level (0 = bachelor's, 1 = combined bachelor's and master's)	0.178	0.066	0.039	0.612	.541
<i>Type of settlement (dummy coding, ref.: smaller town)</i>					
Capital city or county seat (dichotomous)	0.230	0.227	0.052	1.015	.311
Village (dichotomous)	0.055	0.247	0.011	0.223	.824
<i>Social integration</i>					
Relationships with lecturers (with index)	<b>0.227</b>	<b>0.030</b>	<b>0.352</b>	<b>7.590</b>	<b>.000***</b>
'On-campus' relationships (with index)	0.058	0.039	0.071	1.491	.137
'Off-campus' relationships (with index)	0.037	0.035	0.050	1.049	.295
<i>Parental education background (dummy coding, ref.: heterogeneous)</i>					
First-generation students	0.311	0.250	0.072	1.247	.213
Highly educated background	<b>0.821</b>	<b>0.265</b>	<b>0.172</b>	<b>3.102</b>	<b>.002***</b>

	<i>B</i>	<i>SE</i>	$\beta$	<i>t</i>	<i>p</i>
<i>Fields of study (dummy coding, ref.: teacher training)</i>					
Agronomy	0.081	0.488	0.010	0.165	.869
Arts	-0.190	0.525	-0.021	-0.361	.718
Economics	0.850	0.486	0.100	1.408	.160
Informatics	0.473	0.537	0.050	0.880	.379
Law	<b>1.937</b>	<b>0.456</b>	<b>0.237</b>	<b>4.245</b>	<b>.000***</b>
Engineering	0.267	0.461	0.044	0.578	.564
Medicine	0.414	0.358	0.080	1.155	.249
Social sciences	0.611	0.527	0.069	1.161	.246
Science	0.469	0.491	0.057	0.954	.341
<i>Motivation for further studies (continuous variable)</i>					
Status-oriented and material	-0.043	0.111	-0.019	-0.384	.701
Intrinsic	<b>0.272</b>	<b>0.123</b>	<b>0.106</b>	<b>2.215</b>	<b>.027*</b>
Dilatory behaviour	-0.106	0.123	-0.040	-0.864	.388
Instrumental	<b>0.294</b>	<b>0.143</b>	<b>0.096</b>	<b>2.050</b>	<b>.041*</b>
Adj. $R^2$ =	0.184				
F =	4.797				

Note.  $N = 810$ , \* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$ .

A significant regression equation was found:  $F(25, 417) = 4.979$ ,  $p < .05$ ) with an adj.  $R^2$  of .184. The students' predicted academic efficiency is equal to  $-4.296 - 0.423$  (SEX) +  $0.227$  (RELATIONSHIPS WITH LECTURERS) +  $0.821$  (HIGHLY EDUCATED BACKGROUND) +  $1.937$  (LAW) +  $0.272$  (INTRINSIC FACTOR) +  $0.294$  (INSTRUMENTAL FACTOR), where sex is coded as 1 = male and 0 = female, the relationship with lecturers is measured by an index, highly educated background is coded as 1 = highly educated background, 0 = heterogeneous (dummy coding, reference category is heterogeneous background), law is coded as 1 = law, 0 = teacher training (dummy coding, reference category is teacher training), intrinsic factor is a continuous variable and instrumental factor is also a continuous variable. According to the resulting regression coefficients, it is women, students who have strong relationships with the lecturers, students from highly educated back-



grounds, and law students who exhibit higher academic efficiency compared to others. It can also be seen that students from highly educated backgrounds are in an advantageous situation, but the coefficient is the highest for students who have strong relationships with lecturers.

## 6. DISCUSSION

Before carrying out the empirical analysis, we formulated two research questions. First, we intended to identify the fields in which first-generation students are facing disadvantages. We have found that these students have a lower level of economic capital, but we have found no evidence of a lack of integration and academic efficiency. Our second research question concerned the specific characteristics of the subsample with a heterogeneous background. According to our findings, students with heterogeneous backgrounds do not seem to constitute a transitional category due to their similar features to first-generation students. The subsample of students from highly educated backgrounds seems to be special in various respects.

According to the literature, we assumed a lower level of social integration for first-generation students. This hypothesis (H1) could not be verified because, in the field of 'on-campus' integration, no significant relationship was detected. However, 'off-campus' integration seems to be more significant, and this finding is closely linked to the phenomenon of double identity (Pearce, Down and Moore, 2008).

According to the theoretical background, we supposed that the patterns of motivations for further studies were special in the subsample of first-generation students (H2). Among them, only one significant relationship could be found, namely in the case of 'dilatatory behaviour'. The negative attitude towards this factor was also typical of students from heterogeneous backgrounds. Our hypothesis has been partly corroborated.

Our next hypothesis concerned the lower level of academic efficiency among first-generation students (H3). Our hypothesis has not been corroborated.

The fourth hypothesis referred to the effects of a lower parental education level in the linear regression model (H4). In this model, a wide range of independent variables were used, and the highly educated background had a positive effect on academic efficiency, whereas low education level had no significant influence. This hypothesis has not been verified.

If we go through our empirical findings, we cannot identify any difference in first-generation students 'on campus', despite the existing theoretical frameworks in the field of social integration. The explanation may lie with the special situation

of this university because the proportion of students with low SES is the highest among research universities in Hungary (Hegedűs, 2020).

We have found no evidence of the negative effect of a lower parental education level in the field of achievement, but disadvantages of a high education level can be detected. The effect of sex is very interesting because those who strongly follow the institutional norms are mostly women, and this attitude can raise the level of their academic activities, as well. A positive attitude to learning and knowledge (intrinsic motivation) can raise the level of academic efficiency, in a similar way to the external constraints (instrumental factors).

Only one field of study – law – has a significant effect on the linear regression model. The situation with law is very specific because this field of study enjoys a very high prestige, the students' social background is favourable and all the courses in this field are taught at this university faculty. These elements may create a special situation in which the institutional climate has special characteristics, which can raise the students' academic efficiency in a measurable way. These results may underpin Weidman's (2006) claim about the relationships among disciplines, academic climate and academic efficiency. Certain medical fields also have high prestige, but this is not true for every field of medicine (e.g., nursing studies or midwife training etc.).

First-generation students display a specific pattern of academic efficiency. We can identify the disadvantages faced by these undergraduates in the field of foreign language learning (an intermediate and an advanced level language exam). It is very important to note that, in the field of academic activity, these undergraduates are not at a disadvantage (publications, conference papers, taking part in research groups, etc.).

## 7. LIMITATIONS

Our main limitation lies in the location of the analysis. However, the number of students included in the database is over 800. What is more, this institution has special characteristics due to its Central and Eastern European location and specific student body. Another limitation derives from the overlap between the faculties and fields of study. The economic situation and the prestige of social groups which produce these first-generation students obviously have special features in this region. The socio-economic backgrounds among the fields of study may also be diverse due to wage levels and the enrolment process.

Since we have created certain components of the methodology, the chance of comparability is somewhat reduced (it could be useful to apply widely used instru-

ments later). The question blocks, which were used to assess the analysed fields (academic efficiency, motivation for further studies, integration, economic capital) are the result of a long-term development and refinement process. We had used earlier forms of the questions throughout different waves of our research projects (2005, 2012, 2014). The limitation of our regression model is, as the bivariate method revealed, that there is multicollinearity between the explanatory variables. This could be addressed by the stepwise inclusion of independent variables, which was not the case in this publication due to reasons of space.

## 8. PRACTICAL IMPLICATIONS

If we go through the results of the linear regression model, lecturers seem to be very important – they have a key role, especially in the case of first-generation students because these undergraduates do not have enough knowledge about the possibilities open to them. Another important conclusion of the analysis regards providing feedback to institutions about the foreign language skills of first-generation students. Overall, it is important to improve institutional policies. The explanations for these disadvantages are sometimes hidden, so local research projects are also very important. The nationwide framework of this policy can be used as a foundation but, as could be seen earlier, every institution has its own patterns in terms of students' social background and academic work. These institutional policies may need to create specific opportunities for first-generation students.

## 9. CONCLUSION

In conclusion, we have not revealed that first-generation students experience disadvantages in every segment analysed (e.g., 'on-campus' social integration and academic efficiency). However, our results underpin the effects of a high parental education level in the regression model. We can also find traces of certain elements which can lead the career path of these undergraduates in a negative direction (for example, language learning with weak efficiency, lower propensity to plan for a PhD degree) and result in a higher level of closeness in society and in the social group of intellectuals.

Our empirical findings confirm that students' achievement is formed by several factors, so the analyses must rely on a complex, interdisciplinary approach. One such important factor is motivation, which can raise the level of achievement but is not embedded in the parental background (e.g., intrinsic motivation), so future analyses will need to exceed the rigid set of socio-demographic variables. The advantageous situation of students from highly educated backgrounds is unequiv-

ocal in terms of economic capital and academic efficiency, which shows how traces of inequalities are still palpable in the system of higher education. Moreover, our findings highlight that not only first-generation students but also those from heterogeneous backgrounds face disadvantages. The effects of the universities (networks with lecturers, disciplinary subcultures etc.) can be significant, so it would be recommended to develop institutional policies, especially in the rather rigid social structure of Eastern European societies. According to Eurostat (2020), if we analyse the composition of the student population from the aspect of family history, we find that family history matters more for school efficiency in Eastern Europe (Bulgaria, Croatia, Czechia, Hungary, Poland, Romania, Slovakia and Slovenia) and Southern Europe than in Northern and Western Europe.

We were able to confirm the complex embeddedness of students' efficiency in socio-cultural and institutional elements as well as motivation (Osman et al., 2021), but the lower achievement of first-generation students was not generally verified despite what the theoretical background might suggest. An explanation for this result may be found in our complex approach toward efficiency or the special student population of the analysed institution, especially because it has a high proportion of low SES students (Hegedűs, 2020). At the same time, we could identify the segments in which first-generation students face disadvantages (e.g., in the field of foreign language learning, planning a PhD degree). These are crucial for the subsequent successful labour-market presence or an academic career – which could enable large-scale social mobility. Moreover, according to the results of our linear regression model, a high parental education level can generate an advantage. Traces of inequalities can still be found in the current, post-massification higher education system (e.g., Christie, 2016) but elements of these disadvantages may be hidden at first sight. The massification of institutions could decrease the effects of universities (and this fact is very significant from the aspect of students' socialisation (Weidman, 2006) and the elimination of disadvantages). Besides, students' practical expectations may reduce the level of complex achievement (which cannot be captured only with grades), which could be counteracted by these policies.

## FUNDING

Project no. 123847, titled 'The Role of Social and Organisational Factors in Student Attrition', has been carried out in the framework of the CHERD-Hungary research group, with support from the National Research, Development and Innovation (NFKI) Office, and with funding from the K-17 grant programme. The database belongs to this research project.

This article was prepared with the support of the János Bolyai Research Scholarship of the Hungarian Academy of Sciences and it was also supported by the ÚNKP-20-5 New National Excellence Program of the Ministry of Human Capacities.

## CONFLICT OF INTEREST

Authors declare no conflict of interest.

## ETHICAL APPROVAL

The institutional review board of the Institute of Educational Sciences and Cultural Management of the University of Debrecen approved the investigation (04\_2021).

## DATA ACCESS AND TRANSPARENCY

The data is available only for the members of the CHERD Hungary research group.

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## Sveučilišni studenti prve generacije iz perspektive postignuća, motivacije i integracije

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### SAŽETAK

U ovom se radu opisuju obilježja studenata prve generacije iz perspektive postignuća, društvene integracije i motivacije. U znanstvenoj literaturi navode se posebne okolnosti s kojima se susreću studenti preddiplomskih studija te se upozorava na to da su prepreke na koje oni nailaze sustavne. U ovoj je analizi upotrijebljena baza podataka koja sadržava podatke s velikog istraživačkog sveučilišta u Mađarskoj (2019., N = 810). Empirijski rezultati ne pokazuju da studenti prve generacije ostvaruju niža postignuća. Međutim, skloni su posebnim obrascima kad je riječ o motivaciji za visoko obrazovanje. Usporedba stavova između studenata prve generacije i studenata čiji su roditelji visokoobrazovani pokazuje da u prvoj skupini nedostaje raznolikosti kad je riječ o društvenoj integraciji među kolegama na sveučilištu. Naposljetku, rezultati modela linearne regresije pokazuju da studenti čiji su roditelji visokoobrazovani imaju određene prednosti. Na temelju tih rezultata mogu se objasniti određena obilježja studenata preddiplomskih studija iz obitelji u kojima je jedan roditelj visokoobrazovan, a drugi nije. Čini se da su ti studenti sličniji studentima prve generacije nego studentima čiji su roditelji visokoobrazovani. Naposljetku, rezultati ovog istraživanja pridonose dubljem razumijevanju veza jer se u njima utvrđuju elementi prepreka na koje nailaze studenti prve generacije (ponajprije kad je riječ o poznavanju stranih jezika) i zaključku da je učinkovitost studenata na složen način isprepletana sa sociodemografskim i institucionalnim čimbenicima te s motivacijom. Ti rezultati upućuju na to da sustav visokog obrazovanja i nakon masifikacije sadržava prikrivene nejednakosti.

Ključne riječi: studenti prve generacije, postignuća, motivacija, integracija, visoko obrazovanje

