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Student choice of higher education institutions in a post-transitional country: evidence from Serbia

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ABSTRACT

The sector of higher education in developed countries has been facing important structural changes over the last decade, which is now expanding to developing countries also. As the competitive landscape is changing, the trend of commercialisation of higher education has become more evident. Higher education institutions (H.E.I.s) have been developing their business strategies, with a clear focus on marketing activities, changes in organisational processes, and even changes in their priorities and missions, thus becoming more lucrative. Knowing student behaviour and criteria for choice decisions and recognising the main determinants of students' choice is the basis for establishing an effective strategy of H.E.I.s. The aim of this article is to shed light on student choice criteria when deciding which institution in higher education to enrol, and to identify main moderating influences. Linear mixed model (L.M.M.) was used as the main methodological tool for analysing the main variation in the attitudes and expectations of students, based on several moderating variables, their socio-demographic and personal characteristics. The results reveal main institutional attributes that HEIs from a post-transitional country can use for the effective market positioning, and the influence of gender, academic aspirations and achievements on the assessment of various students' choice criteria.

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1. Introduction

The global higher education sector has experienced transformational changes in recent decades, mainly in terms of an increased competition in recruiting students and the 'massification of higher education' (Briggs & Wilson, 2007; McManus et al., 2017). Similar structural changes have occurred in south-east Europe, additionally intensified and marked by the transition process. Serbia shares some similar characteristics in that respect, being however a rather unsuccessful example regarding the overall transition processes (Lazić & Cvejić, 2005).

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Transition in former socialist countries brought formal institutional transformation, (re)introducing the market as the key principle of social and economic organisation. This principle has also become one of the cornerstones of the higher education institutions' (H.E.I.) development strategies (Jungblut & Vukasovic, 2018; Vukasovic, 2014). Paradoxically, being rather unsuccessful in economic transition, Serbia has established a fairly free market in higher education. Institutional transformation in higher education in Serbia has been carried out through the accreditation process in the overall Bologna process implementation, followed by the full implementation of a three-cycle system (bachelor studies, M.S.c. studies and P.h.D. studies) and E.C.T.S. system in all study programmes.

The market principle has prompted the proactive behaviour of H.E.I.s towards customers/future students. As the main outcome of changed competitive landscape, the relationship between students and H.E.I.s has developed into a customer–service supplier relationship. This is a broad trend, firstly noticed in the developed countries, and now expanding to developing countries. Higher education evolves from the public good, which creates benefits for the society, to some kind of private good/service which a university provides to their students. As other authors have already noticed, the student–university relationship becomes more marketised (Judson & Taylor, 2014; Maringe & Gibbs, 2009, McManus et al., 2017). Students are perceived as customers, while universities' mission becomes delivering added value compared to competitors and finding effective ways of market positioning.

In addition, branding universities and all sources of promotional activities have become an evident practice among main industry players. In general, H.E.I.s have started behaving more as business organisations (Olssen & Peters, 2005; Clarke, 2007), with developed marketing strategies, changes in organisational processes, and even changes in their priorities and missions, thus becoming more lucrative. Drummond (2004) observed the commercialisation of higher education, and noticed that H.E.I.s put more focus on marketing as a part of their business strategy. On the other hand, Maringe and Gibbs (2009) insist on the public good perspective and on decommunitising the offers of universities, while universities, apart from their intellectual and scientific importance '... embody in their practice powerful organisational, instrumental values, and wider social and cultural values.' However, they also emphasise the role of universities' marketing strategy in creating long-term, partnership relationships with students.

Perceiving students as customers, opened a number of questions regarding their behaviour, such as students' choice, motivation, socio-demographic, psychological and other influences. As educational landscape becomes more competitive, the importance of such investigation rises. This question is relevant not only to the university–student relationship, but also to public policy. This analysis aims to find out major institutional attributes that students value in the process of choosing an H.E.I. After a brief literature review on student choice and main choice criteria, contextual framework will be discussed in the third part of the article, as the research was conducted in one post-transitional European country, with a specific educational ecosystem. The fourth part explores the methodology of research after which research results with main implications for H.E.I.s and policymakers will be presented.

2. Literature review: student choice

In order to develop an effective competitive strategy, all organisations have to know their target market and meet their needs. From the perspective of H.E.I.s, a question of student choice criteria arises. Since 1980s, issues of student university choice have been analysed in the literature. This choice question has two elements: the question of choosing higher education compared to other alternatives (working or non-university alternatives) and the question of choosing a particular H.E.I. (Hossler et al., 1989). The central point in this article is the question of particular university/faculty choice.

In line with the commercialisation of higher education, the students' decision-making processes can be considered as a classical customer decision process, developed in the marketing literature. In the literature on student choice, there is no widely accepted model of students' decision process, while there are three-staged or five-staged models. Five-staged models of students' choice relate to Kotler's five-stage consumer decision process that starts with problem recognition and information search, followed by the phases of evaluation of the alternatives, the purchase decision and post purchase behaviour (Kotler, 2000, p. 98; Kotler & Keller, 2016, p. 195). Three-staged models are more common in the literature. Hossler and Gallagher (1987) proposed a three-stage development model of student choice with following phases: (1) predisposition, which is recognising the need in five-staged model, when a student makes a decision about the continuation of education; (2) search, when a student collects information, develops a set of criteria for evaluating different universities and recognises main alternatives; and (3) choice, seen as purchase decision in a five-stage model. Jackson (1982) recognised the preference stage, seen as an attitude towards further education, influenced by academic achievements (which corresponds to problem recognition in a five-stage model), the exclusion stage, when a student defines a choice set (as the identification of a potential H.E.I.) and the evaluation stage, which matches the evaluation of the alternatives and the final purchase decision in a five-stage model. Litten (1982) distinguished the stages of desire (the decision to attend university, corresponding to problem recognition), investigation (seen as information search and evaluation) and the final stage of application, admission and enrolment (matches the purchase decision in five-stage models).

This study deals with the evaluation of alternatives, as the central phase of a five-staged student decision process (also acknowledged in the three-staged models) when students as customers assess different attributes of H.E.I.s. In other texts, those attributes will be referred to as the criteria of students' choice. The premise in the article is that evaluation is a cognitively oriented process, 'meaning that consumers form judgments largely on a conscious and rational basis' (Kotler, 2000, p. 99). In the literature, there is no generally accepted list of criteria, while student choice is shaped by various social, psychological and environmental factors. Dunnett et al. (2012) emphasised that in this area one can expect high heterogeneity in the behaviour of students in different countries and different social contexts. In Table 1, the most important choice criteria identified in the literature are listed. In addition to understanding student choice criteria, this study also deals with different factors that influence student choice, as recognised in various models (Champan, 1981; Jackson, 1982). Student characteristics are among the most analysed factors. Champan (1981) recognised

Table 1. Main choice criteria identified in the literature.

Choice criteria	Authors
Reputational factors	Chapman, 1993 Soutar & Turner, 2002 Donaldson & McNicholas, 2004 Briggs, 2006 Alves & Raposo, 2007 Pampaloni, 2010 Platz & Holtbrügge, 2016
Financial considerations such as tuition, available scholarships, etc.	Donaldson & McNicholas, 2004 Shanka et al., 2006 Pampaloni, 2010
Career prospects	Kallio, 1995 Donaldson & McNicholas, 2004 Maringe, 2006 Alves & Raposo, 2007 Platz & Holtbrügge, 2016
Quality of programmes, their structure, nature and diversity	Kallio, 1995 Soutar & Turner, 2002 Donaldson & McNicholas, 2004 Shanka et al., 2006
Location	Donaldson & McNicholas, 2004 Shanka et al., 2006 Briggs, 2006 Alves & Raposo, 2007

Source: Compiled by the authors based on scientific literature.

several student characteristics, which were analysed in this study as socio-demographic factors, academic aspirations and academic achievements of students.

The main studies of students' H.E.I. choice were conducted in the developed countries, especially in the U.S. (Kallio, 1995), in the U.K. (Dunnett et al., 2012; Gibbons & Vignoles, 2012; Maringe, 2006; McManus et al., 2017) or in Germany (Obermeit, 2012). In the U.S., the well-known models of student choice were developed (Champan, 1981; Hossler et al., 1989; Litten, 1982). Although there are studies dealing with some developing countries (but limited in scope, as noticed by Mbawuni and Nimako, 2015), there is an evident gap regarding research in south-east European countries. In order to fill that gap, this study is oriented towards investigating and understanding student choice in Serbia, as one post-transitional, south-east European countries.

3. Contextual framework

As it has been already stated, the Serbian transition context is rather different from the model of 'successful postsocialist transformation' (Lazić & Cvejić, 2005). Two phases have been distinguished in Serbia in this respect: blocked transition in the 1990s, and prolonged ('unblocked') transition since the political changes in 2000. After these changes, the process of postsocialist transition was unblocked and Serbia entered the period of gradual consolidation of the capitalist system (Lazić & Pešić, 2012). Private economic initiatives have resulted in the development of a large number of private H.E.I.s. That way, the number of universities in Serbia has increased by more than double. Although private universities have a relatively low market share (they participate with less than 13.2% in the total number of students who have

enrolled universities in Serbia [Statistical Office of the Republic of Serbia, 2018a]), the competitive landscape has changed.

The state sector in higher education faced new competitors, not just in terms of new study programmes, but also in terms of new approaches to teaching and different criteria in grading process. In addition, some reforms, such as the introduction of E.C.T.S. system, allowed higher international mobility of students. That provides more opportunities for recruiting international students, opening new international markets, but also increases competitive pressure from international competition. These new competitive pressures upon state H.E.I.s have been strengthened by inadequate state financial support for state universities (Education, Audiovisual and Culture Executive Agency, European Commission, 2017). Furthermore, the competition for university attendees between privately-owned and state-founded universities has been taking place in an unfavourable demographic situation primarily characterised by severe depopulation and youth emigration (OECD, 2015/2016).

Nevertheless, in such a competitive landscape only the University of Belgrade (the biggest state university) has managed to rank constantly among top 500 universities on the Academic Ranking of World Universities since 2012 (Academic Ranking of World Universities, 2017). There is no doubt that such international ranking increases the reputation of an H.E.I., but student choice of an H.E.I. is more complex. In order to evaluate factors of student choices of H.E.I.s in Serbia we conducted an empirical study among final year high schools students in Belgrade.

4. Research objectives and methodology

In the absence of the research in the matter in the post-transitional countries, in south-east Europe, the focal point of this research was to analyse the students' evaluation of different university characteristics, which are proposed as the main selection criteria. Institutional characteristics were analysed, as they are controllable factors from the perspective of an H.E.I., so they can be used as a basis for their marketing and recruiting strategy. This direction of the research is in accordance with the results of Pampaloni's (2010) study which showed that 'institutional characteristics were more influential than interpersonal or informational resources used by students' and with Bergerson's (2009, p. 29) conclusion that 'information about institutional characteristics is essential to the choice ...' an H.E.I. can improve or change some characteristics and features of its offer, so it can develop a value proposition that fits students' needs and expectations. The main research questions are:

RQ1: what are highly assessed institutional characteristics in the process of student HEI choice

RQ2: what are the main moderating factors of students' evaluation of a HEI?

The influences of the socio-demographic characteristics of students and some personal attributes will be tracked. The socio-demographic characteristics of students included in the research are: gender, education of parents and working status of parents. The personal attributes were students' academic achievements and students'

Table 2. Characteristics of the sample.

Gender of students		
Female		63.40%
Male		36.60%
Type of high school		
Grammar (Gram.)		64.1%
Vocational (Voc.)		35.9%
Education of parents		
	Father	Mother
Primary school	2.20%	2.10%
Secondary school (Sec.)	30.70%	31.80%
Colleges of applied studies (Coll.)	20.80%	19.10%
University (Un.)	46.30%	47%
Employment status of parents		
	Father	Mother
Employed (Em.)	83.90%	82.40%
Unemployed (Unem.)	8.90%	14.20%
Retired (Ret.)	7.20%	3.40%
Students' academic aspiration: intended field of studies *		
Social science and humanities (SC&H)		56.70%
Natural science and mathematics (NS&M)		5.50%
Medicine and other medical sciences (MS)		6.50%
Engineering, computing and other technical studies (TC)		28.90%
Art studies (AS)		2.80%
Students' academic aspiration: preferred university by type of ownership		
State universities		89.90%
Private universities		10.10%
Students' academic achievement: success in high school		
Excellent (Exc.)		54.4%
Very good (VG)		31%
Good and fair (G&F)		14.6%

* The classification of the study fields is presented based on Educational-scientific and educational-artistic fields defined in the Law on Higher Education, Serbia (2017)

Source: Authors' calculation.

academic aspirations. This kind of analysis should provide useful guidelines for developing university marketing and recruiting strategies.

In order to collect the data, a survey was conducted in 20 high schools in the capital city of Serbia. The developed questionnaire was pre-tested and then distributed in 13 grammar schools (out of 15 grammar schools in Belgrade) and seven vocational schools. Grammar schools make the majority of the sample given the fact that students from these schools are supposed to continue their education. Vocational schools were chosen judgementslly, aiming to select those schools from which a large share of students enrol in universities. This implicated the exclusion of the majority of vocational schools from which students do not have the opportunity to enrol university. This convenience sample included 838 respondents; high school students in their final high school year, who were planning to enrol in an H.E.I. They completed the questionnaire in June, several days before the deadline for sending applications to an H.E.I. The number of students from each school included in the sample was set based on the share of students from every municipality in the total number of students. The sample structure is presented in Table 2. In the first phase of the analysis, descriptive statistics accompanied with statistical testing (ANOVA or independent sample test) were applied in order to recognise the main choice criteria (from the list of 19 criteria, based on a five-point scale) and the main personal and socio-demographic variables, which will be additionally tested. The list of criteria was developed based on the previous research, but it is adjusted to the specifics of educational eco-system in Serbia. In the preparation of the survey, interviews with high school students were conducted.

Those results were used in order to tailor the choice criteria proposed in the literature. The principal component analysis was conducted and it generated four factors, from the initial 19 criteria. In the second part of the analysis, the linear mixed model (L.M.M.) was developed and tested. The L.M.M. allowed evaluation and control of the influence of each high school as a specific environment, assuming that there would be similarities between the respondents from the same high school (as they are under the similar influences of the specific organisational culture of an institution).

5. Results

The most important choice criteria is the possibility of finding employment after graduation. Although this criteria is under the influence of the development of the economy, students connect it with a particular H.E.I., as they provide different employment opportunities. The second and the third places are the reputation of the degree on domestic market and the reputation of the degree abroad. Those are reputational characteristics, especially important in case of service businesses. Education is a complex and intangible service, its quality is hard to evaluate in advance, but also represents a one-off decision that can have high impact on the future of the decision-maker (Dunnett et al., 2012). That is why reputational factors are often used as a signal of the quality of education service. Several more criteria have an above average mark: expected earnings after finishing studies, opportunities for international mobility of students, possibilities of enrolling some trainee programmes during studies and the reputation of the institution. In this list there are criteria that can be linked to the employment concerns of students, such as expected earnings after finishing studies and possibilities of enrolling some trainee programmes during studies, but also to the reputational and international characteristics of an institution. Among the criteria that are not assessed as important are those connected to difficulties to enrol and finish a study programme, such as: the difficulty of the entrance exam, the average number of years needed for completion and the number of applications and the number of available places ratio and tuition fees. It is interesting that the tuition fee is the criteria with the lowest average mark. As Serbia is among European countries with the smallest G.D.P. per capita, it is not expected that this determinant be undervalued. On the other hand, at every state university, the best students have an opportunity to study under preference status, as state will cover the scholarship. For others, tuition fee is not very high, compared to some developed countries (Table 3).

In order to develop and test the L.M.M., it was necessary to reduce the number of criteria and to decide upon the independent variables that should be included in the model. Based on the output of the principal component analysis, all 19 criteria are grouped into four dimensions: reputational characteristics, difficulty of studies, employment opportunities and the international position of an H.E.I. Those four factors explain 56.698% of variances (Kaiser-Meyer-Olkin Measure of Sampling Adequacy: 0.873; Approx. Chi-Square: 4897.502; Bartlett's Test of Sphericity df: 171, Sig. 0.000). In accordance with the previous results, employment opportunities and the international position of an H.E.I. are the most important sets of criteria (Table 4). In further analysis, simple averages applied to the four new variables were

Table 3. The results of HEI choice criteria.

Choice criteria	Mean
Employment rates of graduate students	4.24
Reputation of the degree in domestic market	4.16
International recognition of the degree	4.02
Expected earnings after finishing studies	3.99
Opportunities for international mobility of students	3.77
Possibilities for enrolling some trainee programmes during studies	3.71
Reputation of the institution	3.70
Quality of communication and cooperation between professors and students	3.55
Number and variations of modules	3.54
Social life at institution	3.45
Difficulties of a particular programme	3.33
Cooperation of the institution with specific industry	3.31
Reputation of the professors	3.30
Modern equipment at the institution	3.26
Difficulty of the entrance exam	3.16
Average number of years needed for completion	3.14
Opportunities for participation in domestic and international competitions and projects	3.12
Number of applications and number of available places ratio	3.08
Tuition fee	3.04

Source: Authors' calculation.

Table 4. Mean values for four dimensions.

Dimensions	Mean	Std. Deviation
Reputational characteristics	3.4037	0.74213
Difficulty of studies	3.1792	1.00189
Employment opportunities	3.8763	0.80733
International position of a HEI	3.6363	0.94182

Source: Authors' calculation.

used, and were calculated based on the four factors obtained from the principal component analysis.

For the purpose of selecting independent variables that should be included in the model, the influence of different socio-demographic and personal factors were tested. Three socio-demographic variables were analysed: the gender of the respondents, the employment status of parents and the education of parents. The personal factors examined were: academic achievements – calculated based on the total student's score from high school, and academic aspirations – which were considered based on two aspects. One is regarding the type of ownership of the HEI students intend to enrol (due to a substantial gap in the international ranking of state and private universities, in favour of state universities, especially in the capital city, where the research has been conducted). The second is about intended field of studies, which were categorised as: social sciences and humanities, medical sciences, technical sciences, natural sciences and mathematics, and art. Test scores for the influences of socio-demographic and personal variables on the assessment of choice criteria are summarised in [Tables 5](#) and [6](#). Those results indicate that gender, academic achievements and academic aspirations should be further examined and tested. In [Table 5](#), the main differences between high school students from grammar and vocational schools are also listed. Significantly important differences were found in the majority of choice criteria of students from grammar and vocational schools, indicating the importance of specific school environment for understanding students' attitudes.

Table 5. Influence of socio-demographic factors and high school type on students' choice.

Choice criteria	Gender (M)		Education of parent (M)				Employment status of parent (M)				High school type			
	male	female	t	Sec.	Coll.	Un.	F	Em.	Unem.	Ret.	F	Gram.	Voc.	t
Reputation of the institution	3.5648	3.7829	-2.643**	3.6917	3.7101	3.7000	0.014	3.6944	3.6806	3.7193	0.019	3.6685	3.7584	1.091
Tuition fee	3.0167	3.0292	-0.130	3.2707	3.1071	2.8519	8.196*	3.0045	3.4085	2.9310	3.198***	2.8469	3.3906	5.771*
Modern equipment at the institution	3.3367	3.2121	1.470	3.2273	3.3077	3.2686	0.257	3.2444	3.3611	3.3103	0.392	3.1727	3.4122	2.842**
Difficulty of entrance exam	3.0736	3.2108	-1.437	3.2659	3.2588	3.0451	2.807	3.1248	3.3194	3.3103	1.153	2.9773	3.4900	5.509*
Number of applications and number of available places ratio	3.0067	3.1228	-1.209	3.0677	3.2308	3.0000	1.784	3.0405	3.2083	3.1207	0.592	3.0115	3.2074	2.060***
Employment rates of graduate students	4.2162	4.2607	-0.580	4.2189	4.2471	4.2708	0.192	4.2650	4.1806	3.9649	2.256	4.1546	4.3926	3.132**
Average number of years needed for completion	3.0640	3.1732	-1.164	3.2879	3.1667	3.0239	3.340***	3.1151	3.1972	3.2105	0.253	2.9943	3.3885	4.262*
Difficulties of a particular programmes	3.2967	3.3424	-0.496	3.4345	3.3294	3.2487	1.693	3.3165	3.3333	3.3966	0.108	3.1604	3.6355	5.282*
Reputation of the degree in domestic market	4.0842	4.2081	-1.585	4.1955	4.1006	4.1557	0.403	4.1615	4.0704	4.0000	0.748	4.0453	4.3490	3.918*
International recognition of the degree	3.9281	4.0753	-1.735	4.0112	4.0357	4.0349	0.038	4.0359	3.7917	3.9821	1.454	3.9467	4.1380	2.270***
Reputation of the professors	3.3209	3.2888	0.350	3.1547	3.1893	3.4415	4.845**	3.3094	3.3194	3.0351	1.259	3.2724	3.3445	0.790
Number and variations of modules	3.4060	3.6175	-2.516***	3.5189	3.4941	3.5623	0.237	3.5335	3.5694	3.3860	0.483	3.5465	3.5168	-0.354
Social life at institution	3.4916	3.4339	0.662	3.5057	3.4706	3.4037	0.590	3.4393	3.3889	3.6552	0.965	3.3505	3.6208	3.112**
Possibilities for enrolling some trainee programmes during studies	3.5743	3.7874	-2.514***	3.7736	3.7195	3.6702	0.623	3.7326	3.6250	3.5088	1.182	3.6962	3.7264	0.357
Opportunities for international mobility of students	3.6455	3.8474	-2.261	3.7567	3.7500	3.7984	0.134	3.7781	3.6944	3.7018	0.234	3.7848	3.7508	-0.381
Expected earnings after finishing studies	3.8467	4.0723	-2.708**	4.0227	4.1353	3.8960	2.754	3.9985	3.9167	3.7931	0.953	3.8931	4.1438	3.026
Cooperation of the institution with specific industry	3.2809	3.3255	-0.481	3.3712	3.4024	3.2255	1.596	3.3064	3.2083	3.2281	0.269	3.1569	3.5864	4.709*
Quality of communication and cooperation between professors and students	3.4020	3.6350	-2.793**	3.6128	3.6450	3.4538	2.293	3.5483	3.4861	3.4035	0.474	3.4736	3.6812	2.502***
Opportunities for participation in domestic and international competitions and projects	3.0465	3.1799	-1.395	3.1541	3.1235	3.1211	0.054	3.1395	3.2917	2.7931	2.439	3.0829	3.1873	1.094

Notes: *** $p < .05$, ** $p < .01$, * $p \leq .001$.

Source: Authors' calculation.

Table 6. Influence of personal factors on students' choice.

Choice criteria	Field of study (Mean)						High school score (Mean)				HEI ownership (Mean)		
	SC&H	MC	TC	NC&M	AS	F	Exc.	VG	G&F	F	State	Private	t
Reputation of the institution	3.7741	3.7826	3.6881	3.6429	3.5000	0.537	3.8105	3.6573	3.3966	6.459**	3.7107	3.9459	-1.718
Tuition fee	3.0824	2.6522	2.9442	3.2619	2.5500	2.276	2.8917	3.1165	3.3276	5.926**	2.9568	3.4595	-3.112**
Modern equipment at the institution	3.1958	3.2609	3.3721	3.2143	2.8500	1.443	3.2656	3.2298	3.2609	0.077	3.1982	3.6301	-3.050**
Difficulty of the entrance exam	3.2553	2.7391	3.1163	2.4048	2.2000	7.959*	3.0413	3.1855	3.4274	4.232***	3.0906	3.2838	-1.205
Number of applications and number of available places ratio	3.0751	2.9565	3.0794	3.0000	2.6316	0.611	2.9286	3.1619	3.3913	6.572*	3.0866	2.7432	2.128***
Employment rates of graduate students	4.1825	4.1522	4.4791	4.1190	3.4500	6.306*	4.3180	4.1423	4.1913	2.379	4.2377	4.2603	-0.174
Average number of years needed for completion	3.1714	2.7778	3.0841	3.0976	2.2000	3.490**	3.0671	3.0924	3.3966	3.087*	3.0613	3.3649	-1.916***
Difficulties of a particular programmes	3.3411	3.1522	3.3134	3.0000	2.6500	2.174	3.2706	3.2800	3.4741	1.251	3.2444	3.6486	-2.625**
Reputation of the degree on domestic market	4.1402	4.2826	4.2870	4.1951	3.2000	5.098*	4.2339	4.0480	4.1304	2.452	4.1632	4.2027	-0.301
International recognition of the degree	3.9078	3.9778	4.2778	3.9756	3.8500	3.865**	4.1359	3.8816	3.9741	4.028*	4.0060	4.1268	-0.835
Reputation of the professors	3.2759	3.2667	3.2870	3.0952	4.2500	3.187***	3.3586	3.2137	3.2807	1.074	3.2742	3.4932	-1.404
Number and variations of modules	3.5012	3.3043	3.5654	3.6429	4.5500	4.655*	3.5563	3.5020	3.5172	0.188	3.5283	3.6667	-0.968
Social life at institution	3.5553	3.0652	3.4630	3.0488	3.2632	3.237***	3.4276	3.4637	3.4513	0.075	3.4307	3.7534	-2.168
Possibilities for enrolling some trainee programme during studies	3.5867	3.8913	3.9431	3.5476	4.1500	4.653*	3.7384	3.6844	3.6870	0.205	3.7123	3.7671	-0.384***
Opportunities for international mobility of students	3.7173	4.0000	3.9167	3.5000	3.5000	2.123	3.8707	3.7439	3.5690	3.026*	3.7728	3.7671	0.037
Expected earnings after finishing studies	3.9549	4.1333	4.1157	3.8810	2.9500	5.278*	4.0855	3.9274	3.7931	3.633*	3.9910	3.8630	0.908
Cooperation of the institution with specific industry	3.3128	2.8261	3.4722	3.0000	2.7000	4.354**	3.3356	3.2724	3.3534	0.247	3.2679	3.5493	-1.776
Quality of communication and cooperation between professors and students	3.5785	3.3556	3.5853	3.2857	4.0526	1.878	3.5780	3.5100	3.5431	0.280	3.5379	3.7973	-1.842
Opportunities for participation in domestic and international competitions and projects	3.1077	2.9348	3.1521	3.1667	3.9000	2.033	3.1899	3.0920	2.9569	1.573	3.1348	3.1216	0.082

Notes: *** $p < .05$; ** $p < .01$; * $p \leq .001$.

Source: Authors' calculation.

Table 7. Linear mixed model type III test of fixed effects.

Source	Reputational characteristics		Difficulty of studies		Employment opportunities		International position of a HEI	
	F	Sig.	F	Sig.	F	Sig.	F	Sig.
Intercept	220.416	0.000	163.013	0.000	212.666	0.000	103.364	0.000
Intended field of studies	1.025	0.393	3.370	0.010	6.423	0.000	2.980	0.019
Type of HEI	11.891	0.001	1.738	0.188	1.093	0.296	4.554	0.034
Score from high school	1.411	0.235	12.126	0.001	1.105	0.294	7.603	0.006
Gender	1.043	0.308	4.744	0.030	4.377	0.037	3.998	0.046

Source: Authors' calculation.

To test the relative impact of students' gender, academic achievements and aspirations on the four dimensions, into which the 19 criteria are grouped, a linear mixed-effects model was used. The heterogeneity of high school environments was also considered in the model. The assumption (based on statistical testing presented in the Table 5) is that students from different high schools have different attitudes, as specific high school environments influence their behaviour and attitudes. Defining schools as the subject in the L.M.M., the influence of a specific school of each respondent was considered. Students' results in high school, during all four years of studies expressed as a total number of points (total score from high school) were included in the model, as a covariate. Students' gender and academic aspirations, expressed as two variables: (1) intended field of studies; and (2) preferred type of H.E.I.: private or state, were included in the model as the main factors. All the main effects, as well as two-way interactions, were considered. All the main effects were estimated, as fixed effects, and random effects were also tested. Table 7 shows the test results for fixed effects of all four dependent variables. No random effects were found, indicating that the influence of a specific school environment was not found to be significant. Table 8 summarises the estimation results.

The importance of *employment opportunities* as a choice criterion is under the influence of the intended field of studies ($F = 6.423$, $p = 0.000$) and gender. Table 8 summarises the estimation values for this variable. In the case of students enrolling in technical sciences, employment opportunities are more important than for the other groups of students. A high negative value is present in the case of art students, which expressed the least interest for this criterion. Those results are in accordance with the result of James et al. (1999, pp. 45–51), who also found a great difference between arts applicants and other groups, especially regarding the high assessment of the reputational criteria and relatively low concerns for employment opportunities. Female students assessed employment opportunities with higher marks than male students did. It can be explained by the existence of high gender inequalities, especially in the area of labour status and wages in Serbia (Government of Republic of Serbia & Social Inclusion & Poverty Reduction Unit, 2016).

The *International position of an H.E.I.* has been highly assessed by students, and along with employment opportunities, has a great impact on their choice. The results reveal high orientation towards international mobility, which is a phenomenon that has evolved rapidly over time, on the global scale (Chadee & Naidoo, 2009). All four independent variables have a statistically significant impact on the importance of international status. This criterion is more important for art students, followed by

Table 8. Linear mixed model maximum-likelihood estimates of fixed effects.

Parameter	Reputational characteristics		Difficulty of studies		Employment opportunities		International position of a HEI	
	Estimate	Sig.	Estimate	Sig.	Estimate	Sig.	Estimate	Sig.
Intercept	3.416268	0.000	3.897051	0.000	3.712500	0.000	3.105990	0.000
IFS: social science and humanities	0.041746	0.728	0.229597	0.160	-0.035127	0.787	-0.076572	0.621
IFS: medical sciences	-0.082476	0.598	0.084087	0.691	0.080267	0.634	0.021785	0.914
IFS: technical sciences	0.085284	0.495	0.278599	0.099	0.259316	0.054	0.201696	0.208
IFS: art	0.271592	0.171	-0.495676	0.065	-0.438383	0.040	0.210623	0.408
IFS: natural sciences and mathematics ^a	0 ^b	.	0 ^b	.	0 ^b	.	0 ^b	.
Type of HEI: state HEI	-0.343719	0.001	0.190918	0.188	-0.120152	0.296	-0.291234	0.034
Type of HEI: private HEI ^a	0 ^b	.	0 ^b	.	0 ^b	.	0 ^b	.
Score from high school	0.007716	0.235	-0.030953	0.001	0.007423	0.294	0.023251	0.006
Gender: male	-0.059706	0.308	-0.171908	0.030	-0.131197	0.037	-0.149780	0.046
Gender: female ^a	0 ^b	.	0 ^b	.	0 ^b	.	0 ^b	.

Notes: IFS = intended field of studies.

^aReference category.

^bThis parameter is set to zero because it is redundant.

Source: Authors' calculation.

students enrolling technical faculties. Students enrolling at a state H.E.I. valued the criterion of the international position of an H.E.I. as more important, compared to students enrolling at a private H.E.I. The results also show that the international position of an H.E.I. is more important to students with higher high school score, to female students compared to male and to students enrolling at state universities.

Attitudes towards the *reputational factors* are influenced by academic aspirations, described as the type of a preferred H.E.I., which can be state or private ($F = 11.891$, $p = 0.001$). From [Table 8](#), based on estimation values, it is possible to conclude that for the students who intend to enrol at a private H.E.I., the reputational characteristics of institutions are more important. Since private H.E.I.s in Serbia are not highly ranked, students who plan to enrol at those are more concerned with the reputation of the institution.

The difficulty of studies, as a set of H.E.I. choice criteria, is influenced by three independent variables: intended field of studies ($F = 3.370$, $p = 0.010$), score from high school ($F = 12.126$, $p = 0.001$) and gender ($F = 4.744$, $p = 0.030$). Estimation values show that the difficulty of studies is more important to students who choose technical sciences and social sciences and humanities. In case of art students, there are negative estimation values, which can indicate that this set of criteria is the least important to them. A negative estimation value is present for the relationship between the high school score and the importance of difficulty criteria, which are less important in case of students with better high school scores. In case of gender, female students are more concerned with the difficulty of studies than male students are.

6. Discussion

Various lists of H.E.I. choice criteria were developed in the literature and tested in different countries (Alves & Raposo, 2007; Briggs, 2006; Donaldson & McNicholas, 2004; Kallio, 1995; Maringe, 2006; Pampaloni, 2010; Platz & Holtbrügge, 2016; Shanka et al., 2006; Soutar & Turner, 2002). However, there is an evident lack of research in post-transitional countries from south-east Europe, where the educational landscape of higher education is quite different from west European countries, especially regarding the importance and quality of state H.E.I.s. Serbia is a country with a relatively low level of G.D.P. per capita (World Bank, 2018a) and low employment rates (especially among the young population) (World Bank, 2018b). These development factors combined with a specific educational eco-system can influence attitudes of young people towards H.E.I. selection. Understanding their behaviour and criteria for choice decisions can help an H.E.I. to develop an effective market strategy and competitive differentiation, which emerges with the development of the private sector in the higher education in Serbia and the entrance of international competitors. The development of competition in higher education has caused all universities and other H.E.I.s to compete for every potential student, introducing main market principles into their strategy. At the same time, the number of students has decreased, due to negative population trends. The presented data should be interpreted bearing in mind those environmental characteristics.

Students emphasise the employment opportunities set of criteria and international position of an H.E.I. as the main selection criteria, marked as choice dimensions in [Table 6](#) (based on the result of the principal component analysis). Similar results regarding the importance of the employment criteria are identified on developed markets (as in the U.K.: [Maringe, 2006](#); [Donaldson & McNicholas, 2004](#); or Australia: [Shanka et al., 2006](#)). In the case of Serbia, an additional factor influencing H.E.I. selection is the low economic development, especially the high unemployment rate among young people in Serbia. This rate was 31.45% in 2017, among the highest rates in the region of south-east Europe (World Bank, 2018b). Additionally, the Serbian economy faces a high outflow of highly educated young people abroad (OECD, 2015/2016). This is the main reason why students are highly interested in the international position of an H.E.I. (beside employment opportunities), described mainly as the reputation of the degree abroad and opportunities for international mobility. International opportunities are more important to students who have an excellent high school score. This indicates that students with above average performance are more interested in employment or postgraduate study opportunities abroad. Those issues should be addressed by policymakers, bearing in mind detrimental social and economic consequences. In the context of high gender inequality, it was not surprising that female students are more concerned with choosing the right H.E.I., especially in terms of employment opportunities. Namely, in our opinion, these inequalities additionally ‘pressure’ women to earn a higher education degree in order to decrease this gap. This conclusion has been supported by the fact that significantly more women enrol in universities in Serbia (56.6% of all students enrolled in 2017) (Statistical Office of the Republic of Serbia, 2018b) and even more of them graduate (58.9% of all students who graduated in 2017) (Statistical Office of the Republic of Serbia, 2017/2018). In general, female students are more interested in the majority of choice dimensions: employment opportunities, international position of an H.E.I., difficulties of studies, indicating that they are more engaged in that choice.

From the perspective of an H.E.I., this kind of analysis provides valuable insights into attitudes of their customers and main moderating variables, enlightening some ideas for effective market and competitive positioning. Since two dimensions are the most relevant for students, an H.E.I. should underline those characteristics of their offer. Their study programmes, degrees, trainee programmes and other offers should be presented in the context of employment opportunities and the international position of the H.E.I. As there is an evident gap in Serbia between professional competencies provided by specific study programmes and the requirements of the labour market ([Jarić & Đerić, 2019](#)), H.E.I.s have to focus on adjustments of their study programmes in order to increase the employment opportunities for their graduate students. The study reveals different influences of several moderators of student H.E.I. choice: academic aspirations, in terms of types of H.E.I.s student intend to enrol in (private or state, and H.E.I.s in different fields of study), academic achievements and gender. This way, the study provides valuable guidelines for state and private H.E.I.s, for institutions in different fields of science, for targeting different groups of students, based on their academic results or demographic characteristics. For example, private universities have to deal with reputational factors, which are more important to their

potential students than to students oriented towards state universities. Private H.E.I.s in Serbia do not have international ranking, especially when compared to the state university in the capital city (The University of Belgrade), which had a world rank between 201 and 300, on the Shanghai list in 2017 (Academic Ranking of World Universities, 2017). Apart from the first mission (education), evident in case of state and private universities, state universities put much more focus on their second mission (research). As an additional way of competing on the market, state and private universities should more actively develop a third mission: engaging with societal needs, cooperating with specific industries and promoting academic entrepreneurship, especially in the context of employment opportunities after graduation.

Bearing in mind the fact that the L.M.M. showed a high influence of intended field of study on the selection criteria (except in case of the reputational criteria), every H.E.I. should address those differences during the development of its market strategy. For example, employment opportunities are more important for technical and medical fields (compared to social sciences and humanities and art), the international position of an H.E.I. for art and technical fields, the difficulty of studies for technical and social sciences.

As academic results of students represent an important moderating variable of students' choice regarding the evaluation of two choice dimensions (difficulties of studies and international position of an H.E.I.), H.E.I.s should adjust their market strategies depending on the market segment they want to target. Since the majority of institutions have been trying to attract the best high school students, they should highlight the international recognition of the degree and possibilities for international mobility of students. Those results can shed light on the motivation of the best high school students, which is in line with the already mentioned trend of a high outflow of young, highly educated people from Serbia to highly developed countries. However, as the number of H.E.I.s rises and the number of high school students decreases (due to the low birth-rate), H.E.I.s are forced to recruit not only best performing students, but also students with lower high school results. In that case, apart from employment opportunities, which are the most important for all groups of students, the focus should be on the difficulties of studies, explained through two dimensions: how difficult it is to enrol and to complete a specific study programme.

7. Conclusion

This article deals with student choice criteria of H.E.I.s in Serbia. In the absence of similar research in the region, the study aimed to shed light on the issue in the context of a post-transitional economy, with main implications for policymakers and H.E.I.s. As the competitive landscape is changing, the trend of commercialisation of higher education has become more evident. HEIs have been developing their business strategies with a clear focus on market principles. This study identified main students' choice criteria: employment opportunities and the international position of an H.E.I. The importance of employment opportunities is in accordance with some previous findings in the literature, but also with the low level of economic development of the country. The international position and recognition of the H.E.I. and its degrees is

associated with the first criterion, as it is a precondition for applying for employment as well as further studies abroad. The results of the research demand special attention from the policymakers, given that they point to the fact that young, educated people are oriented towards emigration, the same young people into whose education, at all levels (primary, high school and university education for the best performing high school students), the state has invested significantly. As young people face high unemployment rates, education and economic policies should address this issue. Stimulating measures for public–private partnerships regarding employment opportunities for best performing students, supporting entrepreneurial initiatives at universities, stimulating cooperation between university and private sectors, as main employers on the market, are some of the policy measures that can address the problem. The study provides some additional policy implications regarding the strategic goals of the education policy to increase the proportion of highly educated people in the country. According to these goals, the Republic of Serbia will have had at least 38.5% (and later at least 40%) of highly educated people aged 30 to 34 (Ministry of Education & Science & Technological Development of the Republic of Serbia, 2012) by 2020 and beyond.

The results of the study reveal valuable implications for H.E.I.s. Understanding student choice can help H.E.I.s to improve their market position, to recruit high-performing high school students and accomplish the first mission more effectively. The study tested main variations in the attitudes and expectations of students, based on their gender, high school performance, the type of H.E.I. they want to enrol in and the field of study they are interested in, with controlling the influence of a high school environment, by using the L.M.M.. In this way, H.E.I.s can recognise the main choice criteria of their target segments, and create an effective competitive strategy. As the higher education industry becomes more competitive, the need for developing a marketing strategy in order to effectively match a competitor offer and customer need arises.

The results should be interpreted having in mind several limitations of the research: (1) the analysis was conducted only in the capital city; although 24% of the population lives there (Statistical Office of the Republic of Serbia 2018a), we cannot reach conclusions in terms of the whole market; (2) we did not track a range of criteria regarding the location and cost of studying, except tuition fees, because students from the capital city do not often change their location while studying, except in case of choosing an H.E.I. in a foreign country; (3) the analysis focused only on institutional characteristics of H.E.I.s, not including various external influences on student choice, such as influences of parents, peers, high school personnel, media, etc. Another limitation of the study refers to the fact that disparities in access to higher education have not been discussed. These differences can be mainly attributed to different socio-economic backgrounds of future students, influencing (limiting) the choice of an H.E.I. (as Puzić et al. (2019) recognised in the case of Croatian high school students). Nevertheless, such discussion would represent an interesting topic for future research. A key methodological issue to address in further research of this topic should be the size of the sample and inclusion of students from different parts of Serbia. Future research can delve into some additional issues: (1) the role of

external influences on student choice, where the role of media, especially the role of the Internet and social media can be evaluated, as today's high school students are the representatives of Generation Z, generational cohort of digital natives; (2) students' usage of different informational sources in the process of decision-making; and (3) the influence of location of students on H.E.I. choice.

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