AKOS VALENT
University of Pécs, Hungary

CAN THE ADMISSION SYSTEM HAVE AN INFLUENCE ON UNIVERSITY SELECTION?

Abstract:

In our paper, we would like to compare the higher education admission systems of two neighboring Central European countries, those of Hungary and Slovakia. We found this comparison particularly interesting because, in Slovakia, most universities admit applicants without an entrance exam, based on their grades from high school (sometimes even without taking into account school leaving exam results). Universities define their admission re-quirements themselves and make decisions on which of the applicants they wish to give an opportunity to locally. There are no central quotas defined. A given student who applies to 3 universities might get 3 different results in the respective application processes and theoret-ically can parallelly get accepted by several institutions. In such a case, in Slovakia, the stu-dent concerned must make the decision where to study in the possession of the exact infor-mation about his choices.

In contrast, Hungary has a centralized admission system under which high school students are admitted to the higher education system via a transparent points system. The number of points is calculated based on study points (a maximum of 200 points), school leaving exam points (a maximum of 200 points) and additional points (a maximum of 100 points). Under this system, students must define which institution they would prefer as early as the time of application; if they are accepted, they cannot change the priorities afterwards.

We were seeking to find out what differences arise in the number of students accepted into a university as a result of the application of these two systems. To find out, we have assessed data from the given academic years about the number of students who finished high school and the number of those who were accepted into one of the higher education institutions. We used data from the Central Statistical Office (Hungary), the Ministry of Education (Slo-vakia) and Eurostat.

Keywords:

Higher Education, Admission, Hungary, Slovakia, Students number

JEL Classification: I23, I28, I29

Introduction

Two different, at first glance diametrically opposing systems to govern entry into higher education – in two neighboring post-communist countries where the education system has similar developmental characteristics. How could so different regulations emerge in the two countries? What advantages can be expected from one or the other based on experience from the past years? How large a financial or infrastructural burden do they place on the relevant authorities or the individual higher education institutions? Do the two higher education systems affect each other and if so, to what degree? What do those participating in these systems – the institutions or the applicants and students themselves – think of their systems in terms of career opportunities or social justice? A wide range of questions that can be formulated on the subject. In the following, we try to find answers to these as we present the structure and history of the two systems.

The Hungarian higher education admission system

Ever since the '89 revolution, the Hungarian higher education system was influenced by two competing opposite approaches: one characterized by centralized admission involving strong selection at admission and the other characterized by openness and a reliance on internal selection mechanisms after admission. Since the 2005 reforms (in force since 2006), the Hungarian admission system has been one of central regulation and thorough planning – taking a clean-cut position in favor of selection at admission. Even though there have been some changes to the system since 2006, too, but these changes only concerned the institutions responsible for carrying out the process and were more of fine-tuning than of sweeping reform. First, we will have a glance at the system enacted in 2005[1] and then touch upon the amendments made thereto since.[2]

Each year, the higher education admission procedure is carried out at two separate rounds (one for the courses staring in September and another for those starting in February), supplemented by a second admission procedure related to the former, normally with an application deadline on 15 February and 15 November. The y the application filed by potential higher education student predominantly for the courses starting in the fall; in most cases the applicant is a high school student who does not yet know his school leaving exam results. In his application, without additional charge, a given potential higher education student can select up to three courses and two forms of financing (government funded and self-financed) of these three courses. Any further courses selected involves a payment obligation, so the most frequent choice participants make is to select exactly three courses. It is also important to note that the priority set at the time of application is crucial because the applicant can expect to be allowed to enroll in (and only in) the topmost course on his list that he was accepted for based on the number of his points.

The cutoff scores[3] in the admission procedure are determined basically by two factors. On the one hand, the number of students applying for a course and their scores and on the other hand, centrally fixed national quotas that apply to both institutions and specializations. Score-calculation is not a perfectly uniform process because different courses involve requirements regarding and calculations based on different school

leaving exams results. Study results from the last two years of high school, the points awarded based on competition results and to disadvantaged persons as a means to promote equity are common elements. It is an important element of the system, however, that the requirements related to the individual courses are set in advance and are published and available to applicants.

The rules governing the fixation of the centrally set quotas (the maximum number of students that can be admitted) is no less complex. There exist maximum quotas for the individual institutions, quotas applicable to the individual courses of a given institution and also national quotas on specializations and groups thereof. This has a number of interesting consequences: on the one hand, it is obvious that there will be some institutions/courses where oversubscription is expected, but on the other hand, minimum headcounts also need to be set because of the possible smaller number of applications elsewhere. Another peculiarity regarding the capacities is that based on information about the number and scores of the applicants, but before the results are published, the institutions may request the enlargement of their quotas and/or further decreases to minimum headcounts. The changes thus applied can rearrange the results of the application process without the applicants ever knowing, because they are only informed of the end results.

After the applicants' scores and the final quotas are established, the cutoff scores are calculated based on the following algorithm. First every applicant is assigned to the major he selected as first and then assign a cutoff score to each major. If there are less applicants than the quota, then the cutoff score is the score of the applicant with the lowest points. If there are more, then the cutoff score is the score of the last student that can be admitted based on the quota; the remaining applicants (with lower scores) are denied admission with regard to their first selected major. If a person who was denied admission with regard to a particular major has a further major selected in his application, then his next option is activated and consequently, the scores from the previous round are recalculated for those majors where there were not enough applicants. A person who was denied admission with regard to all his selected majors in the above process can try to apply again in later processes; the cutoff scores are rendered final.

It is a rarely addressed peculiarity that the quotas are multilevel. Since 2007, it is not the national quotas that are calculated as the sums of the institutional quotas, but it is the national quota that is divided into the institutional ones. This means that someone applying to a given major offered by a given institution does not only need to compete with the others applying to the given major and institution but with everyone applying to the given major to any institution in the country. As we have seen above, the successful universities aim for additional increases to their quota, it can easily be deduced that the (often rural) institutions with weaker reputations are at a disadvantage not only because of the quotas but also because they get the applicants with less knowledge and skill. To ensure this negative effect is not too strong and does not damage the effectiveness of the algorithm, the Education Authority needs to enforce the originally planned institutional quotas with a certain amount of rigor. The would-be students of the oversubscribed majors have the option to finance their education themselves, while to courses

with low headcounts, supplementary applications can be a solution. Supplementary applications can also solve the problem of applicants who were denied admission to all courses they applied to because they are given an opportunity to select such a major that they can be admitted to based on the knowledge of their own score and the established cutoff scores. The end result is that the quotas established by the government are filled with maximum effectiveness and none of the students can develop a "justified jealousy" because everybody is admitted to the best place available based on his score – within his own preference list.

The Slovakian higher education admission system

Just as Hungarian ones, Slovak universities also accept applications from foreign students, but with that said, the list of similarities between the two systems is already exhausted. The Slovak higher education system does not have established quotas for majors or for institutions; each institution has the right to define the conditions of admission and its method on its own. The only mandatory prerequisite is success in passing the (partially centralized) high school leaving exam, but this cannot be considered on par with a centralized admission procedure. This implies that the system is founded on the principle of openness and intrainstitutional selection mechanisms, while the universities are – essentially – competing against each other under marketlike conditions in their pursuits to attain a larger student population – in an environment of demographical decline. This clearly leads to the drop-off of smaller universities, but as the demographical bottom point approaches, there is increasing demand for a central intervention into the institutional framework. [4] The exact time of this intervention or whether there will be any such intervention at all, remains to be seen in the following years, but in the meantime we can claim that just as the Hungarian system sees the solution to the challenges the system faces in thorough regulation, the Slovak system forces the institutions to adapt to new circumstances and to compete against each other in a way that is similar to how private sector players operate. It is easy to see that there are advantages and disadvantages to both approaches.

Our introduction to the Slovak admission system would not be complete without a brief mentioning of the "National Comparative Exams" (the official abbreviation is NPS),[5] but in order to do this, we must look further than the borders of Slovakia. Ondřej Šteffl founded his not-for-profit, Scio, in 1995. Scio was eventually transformed into a business enterprise in 2004. The Czech higher education system is organized on liberal foundations similar to the Slovak one. The leading universities in the Czech Republic, under pressure from the oversubscription that is party caused by students from Slovakia, were happy to use Scio's integrated admissions system because it freed them from the administrative burden of the admissions procedure and they also gained transparency and integrity in connection with their admission procedures. It is interesting to note that such free market competition as is prevalent in Slovakia, too, can generate a demand for a centralized admission system such as the one in Hungary, but from the private sector and, of course, without Hungary's central, hierarchical quotas. Even though this admission system, which the universities are free to join and which is provided to them as a paid service, is gaining ground in Slovakia as well, mainly in

connection with the oversubscribed courses, it has not driven out institutional admission procedures in the bigger part of the country. It is also worth noting that, in a fair percentage of majors, applicants need not undergo any admission examination.

Before addressing the differences registered in statistics that are due to the peculiarities of the two systems, we give a brief recapitulation of the main characteristics. The Hungarian system is centralized, it is implemented by a government authority, its methodology is fixed albeit modern, its aim is to regulate the direction of higher education and to guarantee the quality of work done at the universities by maintaining the institutions, but also by means of the selection of applicants. In contrast, the Slovak system is much more self-regulating; universities compete against one another under market-like conditions; even the weakest students get a chance to enter higher education and from then on, it is up to them to improve their situation. At the same time, there is a notable demand for a common admission procedure in this self-regulatory system, too, which is matched by supply from the market itself. In the following, we shall use Slovak, Hungarian and European statistical data in our attempt to understand how these differences manifest themselves in the number of students and the quality and financing of the institutions.

Less is more? Or is it?

The next figure shows the higher education attainment rates among 30-34-year-olds with relation to the two countries. We can see Slovakia's notable disadvantage in the 2000s but this has disappeared since then. To see the cause of this equalization, let us look at the generation graduated from high school.
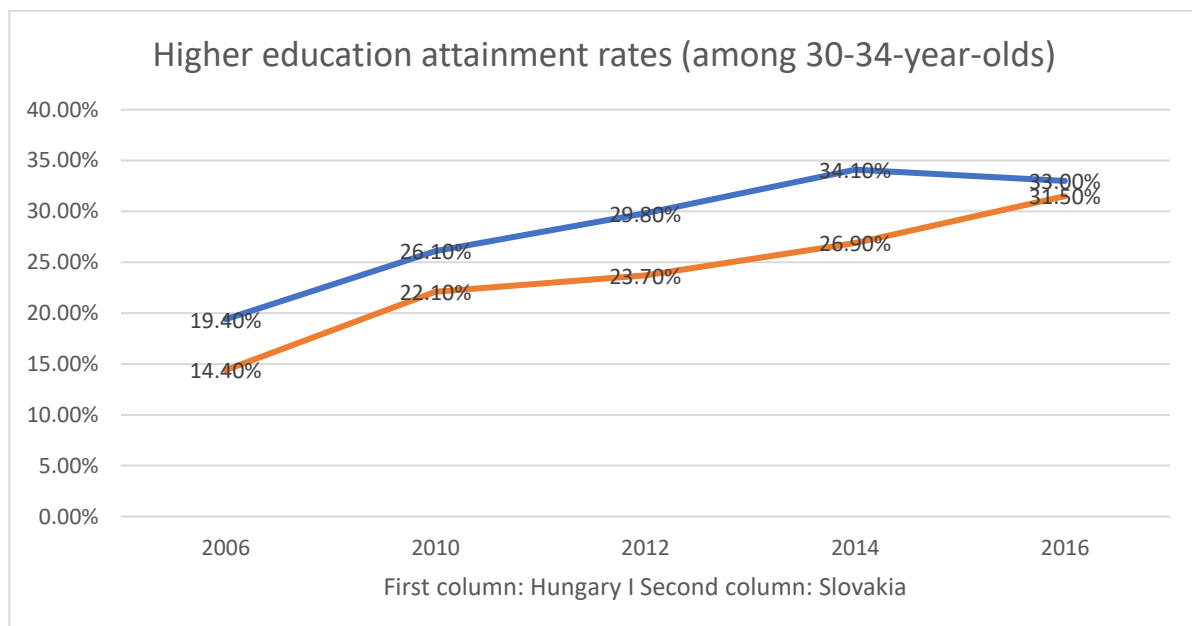

Figure 1 Higher education attainment rates (among 30-34-year-olds)[6]

We are presenting the next figure to highlight the development in the numbers of high school graduates and those admitted into higher education. Naturally, those admitted

also include people who graduated high school in earlier years, nevertheless, longer-term data allow us to approximate the relevant ratio sufficiently for our purposes.
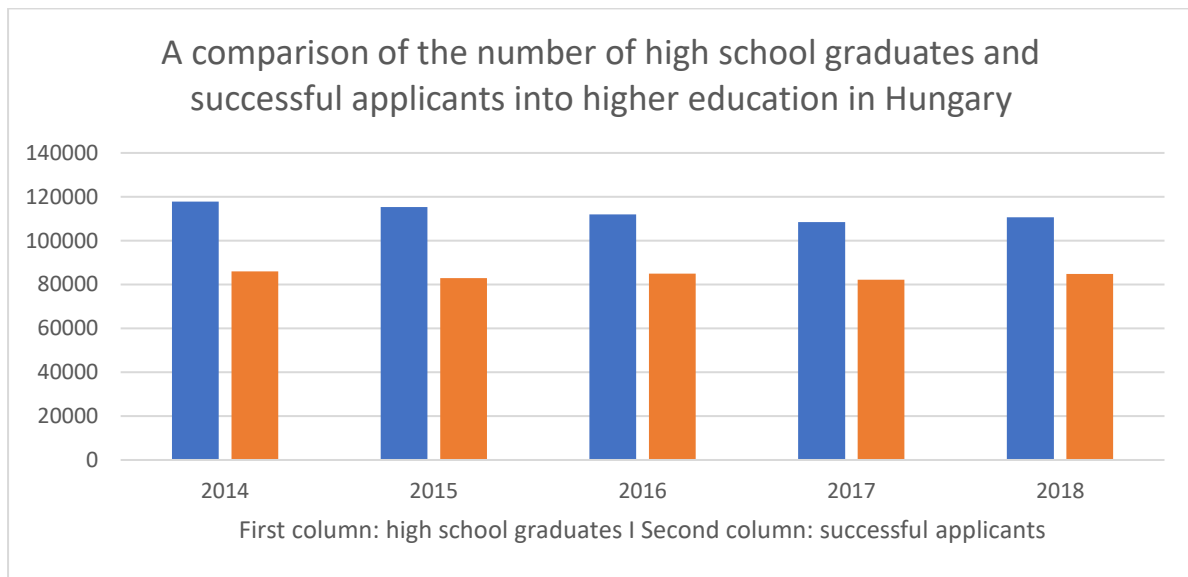

Figure 2: a comparison of the number of high school graduates and successful applicants into higher education in Hungary[7]

If we look more carefully at the figures, we observe ratios similar in magnitude for both countries (values around 74-80%) with Hungary staying closer to the given ratio be-cause of the central regulation. Nevertheless, on their own, the part of these data con-cerning the Slovak side are misleading. The reason for this is twofold. On the one hand, because of the lack of a language barrier, more than ten thousand Slovak young people are admitted into the Czech higher education system annually[8] and on the other hand, because of the ethnic Hungarian minority in Slovakia, hundreds are studying in Hungary with state funding. [9] If we add these to the number of applications in Slovakia, we can conclude that virtually all high school graduates have an opportunity to enter higher education at home, in the Czech Republic or in Hungary.
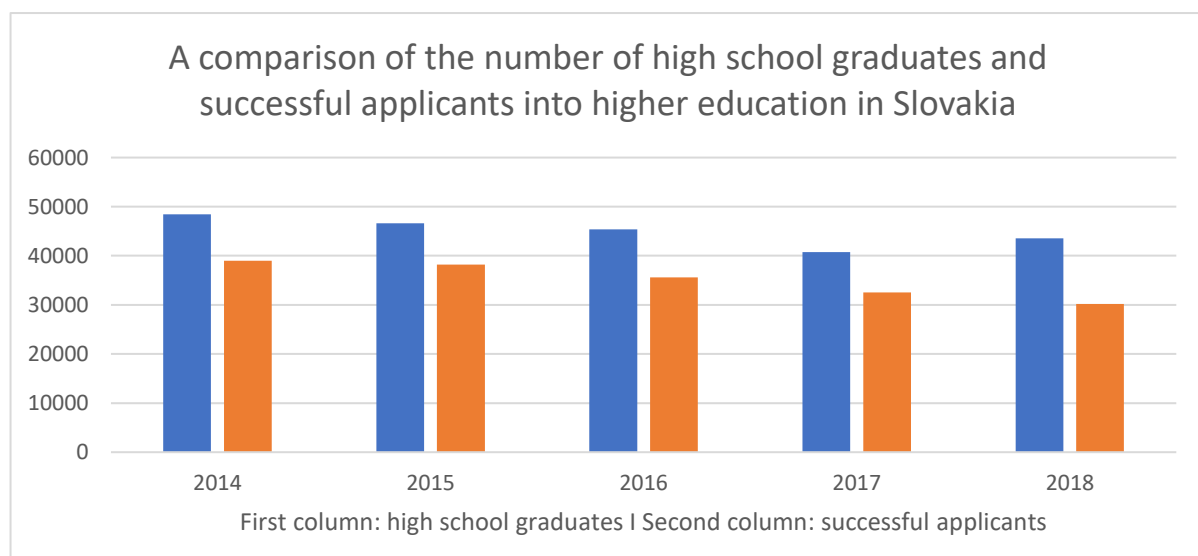

Figure 3: a comparison of the number of high school graduates and successful applicants into higher education in Slovakia [10]

The fact that the Slovakian data are showing a rapid increase among 30-34-year-olds is also caused by other reasons. The next diagram illustrates the number of students in the higher education institutions of the two countries broken down based on degree course level. It is easy to notice that while in the case of the bachelor's level, the data tend to follow the number of high school graduates, but with regard to the master's level and the PhD level, the Slovakian system is showing a better ratio. This summary figure illustrates that Slovak institutions have a higher ability to retain their students and also, more students tend to choose to continue in their studies after completing a given level.
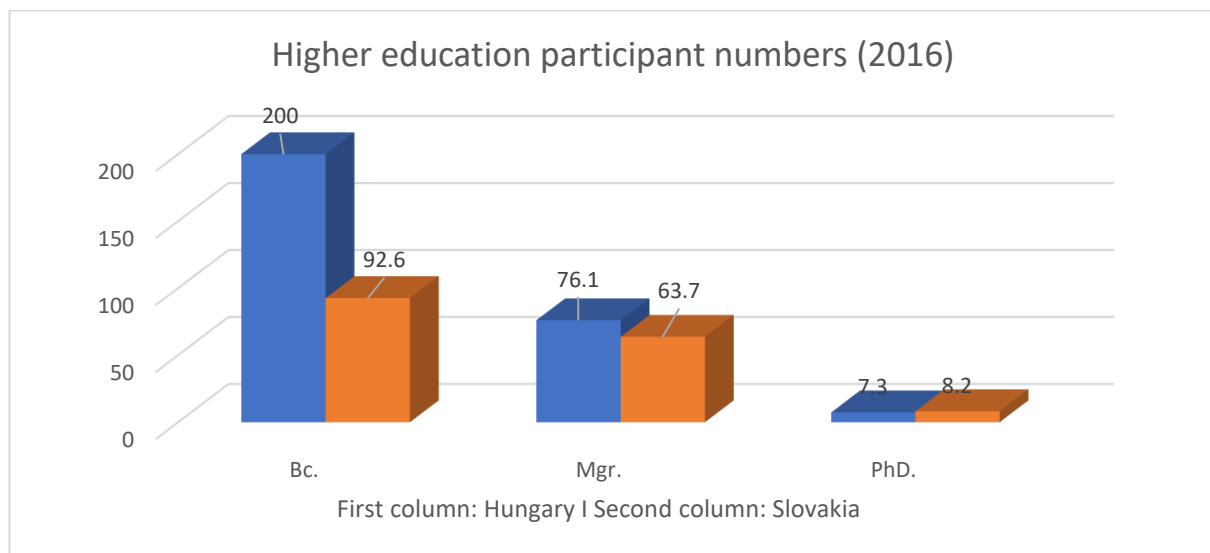

Figure 4: higher education participant numbers (2016)[11]

Several independent studies conducted in Hungary[12] have confirmed the fact that despite the initial stringent selection or perhaps because of the limited options, the student drop-out rate is very high. One of the reasons for this high drop-out rate can be changes of major, but – because the quotas are not larger in the following years either, a substantial part of those leaving higher education do so permanently, into the labor market, without attaining the qualification. A University of Debrecen study[13] suggests that the higher education drop-out rate is 40% at bachelor level, 15% at master level and 50% at PhD level. In contrast, in Slovakia, those finishing their studies and/or continuing their studies on the next level make up a much larger share. This is well illustrated by the next two figures showing that while bachelor's qualifications are attained by a similar percentage in the two countries, master's studies show a significant difference. It is also worth noting that in this regard, Hungary is more similar to the OECD average, while the Slovak system has more in common with the Czech one (and not by chance).

The ratio of those having a bachelor's degree among 20-27-year-olds to the whole population

	2013	2014	2015
Austria	3,2	3,2	3,3
Czech Republic	5,4	5,3	5,0
Germany	3,7	3,9	4,1
Hungary	4,3	4,2	4,6
Poland	8,8	8,4	8,0
Slovak Republic	**5,1**	**4,9**	**4,6**
Sweden	3,3	3,4	3,4
EU28 average	4,9	5,2	5,0

The ratio of those having a master's level degree among 22-29-year-olds to the whole population

	2013	2014	2015
Austria	3,2	2,7	2,7
Czech Republic	3,5	4,1	4,0
Germany	2,3	2,4	2,4
Hungary	2,0	2,0	2,0
Poland	4,2	4,1	4,0
Slovak Republic	**5,1**	**4,9**	**4,8**
Sweden	2,6	2,6	2,77
EU28 average	3,3	3,1	3,2

Figure 5: the ratio of those with bachelor's degrees and master's degrees to the entire population[14]

In order to understand this difference, we need to look around in the economic and financial fields as well. Eurostat data show that, compared to its resources, Slovakia has increased the amount of resources spent on higher education, even if it is still under the OECD average, while Hungary has seen an opposite trend.
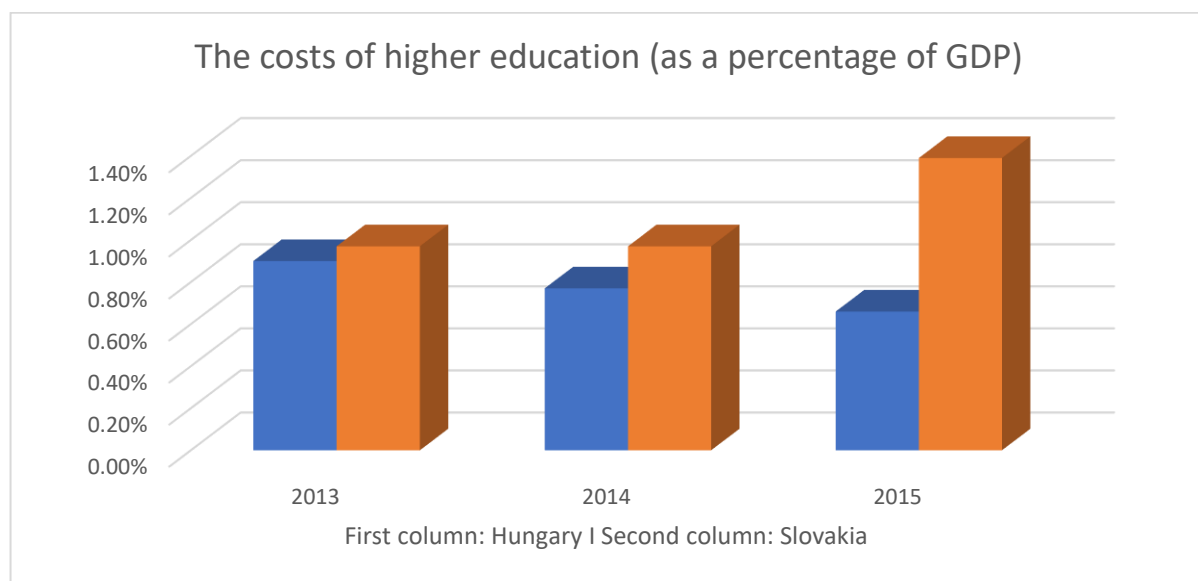

Figure 6: the costs of higher education (as a percentage of GDP)[15]

However, this alone is not sufficient to explain the underlying phenomena. One could offer an explanation for the usage of more resources on the lines that these could be used by the Slovak universities to provide more attractive courses, but it could also be that the increased spending is necessary to support the higher number of (Master's and PhD) students, so from these data alone, cause and effect cannot be completely distinguished. It was more detailed Eurostat data along with the relevant employment and unemployment figures that gave us a deeper understanding of the characteristics of this system.

| | Direct costs | Foregone taxes on earnings | Total costs | Earnings benefits decomposition (taking into account the unemployment effect) | | | | Total benefits | Net financial returns | Internal rate of return |
				Income tax effect	Social contribution effect	Transfers effect	Unemployment benefits effect			
Austria	-76 600	-11 200	-87 800	182 100	70 000	0	16 100	268 200	180 400	7 %
Czech Republic	-27 700	5 300	-22 400	91 400	50 000	0	16 300	157 700	135 300	16 %
Hungary	-20 500	-4 300	-24 800	106 500	97 800	0	43 800	248 100	223 300	22 %
Norway	-74 700	-12 700	-87 400	142 500	30 800	0	17 500	190 800	103 400	5 %
Poland	-22 800	-9 100	-31 900	43 200	87 000	0	26 600	156 800	124 900	12 %
Slovak Republic	**-30 800**	**-2 400**	**-33 200**	**56 300**	**43 200**	**0**	**22 800**	**122 300**	**89 100**	**9 %**
Switzerland	-90 900	-20 000	-110 900	124 200	36 600	0	7 800	168 600	57 700	4 %
United States	-58 100	-6 100	-64 200	224 100	41 500	0	62 700	328 300	264 100	12 %
OECD average	-48 500	-5 000	-53 500	130 100	44 100	400	22 600	197 200	143 700	10 %
EU22 average	-51 600	-5 300	-56 900	141 100	51 600	600	25 000	218 300	161 400	10 %

Figure 7: the return on investment into higher education with regard to the state budget (men, 2012)[16]

The above table shows that while the cost per student is higher in Slovakia, the graduates still confer a smaller economic benefit to the state. Similarly, the data in next table showing the connection between the level of qualification and average income imply that while there are more people who graduate from master's and PhD courses in Slovakia, the attained qualification confers upon them less advantages in the labor market. This is also amplified by the higher rate of unemployment in each category, that can be soundly illustrated by the following statistic. Although in Hungary, a higher proportion of the population has attained only a bachelor's degree, the unemployment rate among them is only at 2.3% (2016) and in Slovakia, where a larger part continue their studies to attain a master's degree, the unemployment rate among those with only a bachelor's is still at 7%.

	Year	Below upper secondary	Post-secondary non-tertiary	Short-cycle tertiary	Bachelor's or equivalent	Master's or equivalent	All tertiary education
Austria	2014	75	113	130	105	179	150
Czech Republic	2013	76	-	120	158	202	192
Germany	2014	84	110	126	152	177	158
Hungary	2014	76	100	109	182	252	207
Norway	2014	88	108	125	113	146	126
Poland	2014	84	100	-	143	167	162
Slovak Republic	**2014**	**74**	**-**	**115**	**127**	**177**	**170**
Switzerland	2014	78	-	-	131	154	143
United States	2014	74	-	114	160	222	168
OECD average		81	-	120	148	191	155
EU22 average		83	105	120	139	175	152

Figure 8: relative income as a function of attained qualification (2016)[17]

In summary, we can conclude that despite the more stringent entry requirements of the Hungarian higher education system, the drop-out rate is also higher and those graduated from bachelor's programs are less likely to continue their studies at master

level, but their chances of finding a job and the wages they can expect to earn in the labor market are higher. In contrast, it is easy to enter the Slovak system, but the labor market situation is such as the best option of those who made it into the system is completing their master's degree, too. It is also true that the situation of Slovak students is a little more complex because of the large number of Slovaks studying in the Czech Republic, but overall, a further increase in the number of those attaining a higher education qualification can be expected.

Summary

In the end of our study, we would like to return to the questions posed in its beginning. As we have seen, both the Hungarian and the Slovak admission system is a result of natural evolution, both are fit to achieve the desired result it their own way. The Slovak model places less burden on the central institutional infrastructure, it practically leaves the selection of institutions and majors to the market mechanism. On the other hand, the Hungarian system implies thorough central planning. However, the aim of satisfying the demands of the market (and society) still remain present. Both models have their disadvantages, but also their advantages. The Hungarian model offers a less flexible application mechanism to would-be students. What is justifiable may not serve the purposes of career seekers so well, and could result in a high drop-out rate in the first years. On the other hand, it also needs to be said that, from a domestic labor market perspective, the Hungarian system – with its more efficient separation of quotas and levels of study – provides the students with a more valuable qualification in comparison to the Slovak system where practically the only option of the students is to finish their master's degree. The universities themselves also have a vested interest in retaining the students longer because institutional financing is contingent on student numbers. This fact along with the tens of thousands of Slovak students applying for a place in the Czech Republic maintains the gap between the quality of the Czech and that of the Slovak higher education system. Research excellence is the only possible way out, but – as they approach the demographic lows – most Slovak universities are struggling to compete for survival. This can be clearly seen on the admissions procedures that were the subject of our study.

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