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**ECONOMICS**

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*Sociology*

Maršíková, K. (2015), The Value of a University Degree in the European Context: the Case of Part-time Students in the Czech Republic, *Economics and Sociology*, Vol. 8, No 3, pp. 260-271. DOI: 10.14254/2071-789X.2015/8-3/18

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*Received:* May, 2015  
*1st Revision:* July, 2015  
*Accepted:* September, 2015

**DOI: 10.14254/2071-789X.2015/8-3/18**

## THE VALUE OF A UNIVERSITY DEGREE IN THE EUROPEAN CONTEXT: THE CASE OF PART-TIME STUDENTS IN THE CZECH REPUBLIC

**ABSTRACT.** This paper analyses various aspects of a university education and the value of a university degree. In the first part, the current situation in European tertiary education is briefly described based on Eurostat and OECD data. An increasing number of people with tertiary education often causes a mismatch in the number and structure of graduates needed in the labour market. The next part of the paper points out both educational and job mismatches. Subsequently, an empirical study based on primary data collected at the Faculty of Economics, Technical University of Liberec in 2014 from part-time students is introduced. The data collected in the pilot survey confirmed a relatively high proportion of individuals who become overeducated, which also influences their rate of return from education. These results are unique in the structure of data and confirm the general findings of some previous studies. This paper offers a platform to further discuss the value of a university degree across Europe.

**JEL Classification:** J21, J24, J31

**Keywords:** Overeducation, educational mismatch, rate of return, European Social Survey, PIAAC.

### Introduction

Higher education plays a key role in maintaining economic growth via common governmental policies in countries that encourage participation in tertiary education. Many countries allocate a considerable budgeted for education from public resources. Therefore, this topic is important not only for growth accounting, but also for the public and policy makers (Kubík, 2015). A national concept for EU countries can be found in the “Europe 2020” strategy, which indicates the future priorities in the European higher education system. This strategy sets a target of 40% of people aged 30-34 in the EU having a higher education qualification by 2020. At the same time, it provides a revised target to improve the performance of education and training systems at all levels and increase participation in tertiary education schemes in Europe (Europe 2020, 2010). Success depends not only on the number of university graduates, but mostly on graduates’ competencies, including professional qualifications and skills (Matějů, Večerník, 2015).

Labour market data in almost all developed countries indicate that university graduates can find a job more easily compared with less educated people. Their occupations require higher qualifications and are more interesting and better paid (Koucký, 2009; Vomáčková, Tišlerová, 2012). This situation concerning tertiary education and mismatches is evidenced in a paper addressing European data provided by Eurostat, OECD, the Czech Ministry of Education, Youth and Sport and also primary data about part-time students at the Faculty of Economics of the Technical University of Liberec.

In the theoretical framework presented in the first part of this paper a research goal of the paper aims to point out the importance of educated population in relation to an actual data about tertiary education in Europe. It emphasizes positive as well as negative aspects of increasing number of university graduates in the population. In this first part of the paper presented secondary data from different international institutions show a significant increase of those with tertiary education as well as increasing number of those who face some form of mismatch at the labour market.

The second, empirical part of the paper uses primary data collected at the Faculty of Economics, Technical University of Liberec to analyse real and expected earnings of part-time university students. On this data a value of university degree is explored. The author compares expected and real earnings of these students to show effects of a university degree on their returns on education as well as educational mismatch.

## 1. Tertiary education in Europe

All of Europe envisages an increasing number of students enrolled in higher education. The same situation exists in the Czech Republic, where today 60% of all young people enter the higher education system; this matches the average of the EU. The number of students enrolled in tertiary education (both public and private universities) in the Czech Republic increased by more than 20% between 2003 and 2010 (Finardi, Mazouch, Fišer, 2013; OECD 2013). Nevertheless, on average, only 17% of the people in the Czech Republic earned a tertiary education degree, compared to the OECD countries in which the average is 31%. At the age of 25-34 years, the difference between university graduates in the Czech Republic and the OECD average is 10% (28% in the Czech Republic compared to 38% in the OECD countries (Euractive, 2013; MSMT, 2015).

*Table 1* introduces the total number of students entering tertiary education and those who graduate both in the entire EU 28 and in the Czech Republic, as well as the proportion of them according to their different fields of study. It can be clearly seen that social sciences, business and law are the most common areas in which university students decide to study both in the EU and the Czech Republic. Therefore students of business studies were also selected for the empirical part of this paper. These students represent an essential part of all students in the Czech and also European tertiary education scheme.

Table 1. The number of enrolled students and graduates in the EU and in the Czech Republic

	Total number of students (in thousands)	Teaching and training	Humanities and arts	Enrolled students					
				Selected fields of study (in %)					
				Social sciences, business and law	Mathematics and computing	Engineering, manufacturing and construction	Agriculture	Health and welfare	Services
EU 28	20246	N/A	12.2	<b>32.5</b>	10.4	15.0	1.0	14.3	4.2
Czech Republic	440	N/A	9.3	<b>31.9</b>	11.4	13.5	1.6	11.1	5.2
	Graduates								
	Selected fields of study (in %)								
				Social sciences, business and law	Mathematics and computing	Engineering, manufacturing and construction	Agriculture	Health and welfare	Services
EU 28	4840.4	9.7	10.8	<b>34.4</b>	9.1	13.5	1.6	15.5	4.4
Czech Republic	107.8	14.6	7.9	<b>34.8</b>	9.4	12.2	3.7	9.7	4.7

Source: Eurostat, 2014, own adoption.

Immediate social and economic benefits of a higher level of qualification and competences derive from better integration on the labour market and in local communities (Popescu, 2012). Getting a university degree is not only a matter of public policy and issues, but there is also a certain level of private prestige connected with better and more qualified jobs, social status, lower unemployment and higher earnings. Statistics from the EU show that the level of education has a strong influence on one's earnings. People with a tertiary degree in the Czech Republic report earning 76% higher income than someone with a secondary degree. In OECD countries, this difference is on average 59% in the adult population. This difference might be caused by the relatively low rate of people with tertiary education who work in the Czech Republic (Education at Glance, 2014).

Across the OECD, tertiary educated adults have the best outcomes in the labour market. On average, 83% of all tertiary educated adults were employed and 5.3% were unemployed. Employment rates among tertiary educated adults are also higher than among adults with upper secondary vocational qualifications in all countries for which information is available (OECD, 2014). The rate of employment in a particular country depends undoubtedly also on the region, age and specialisation of university educated people.

Although the above data presented by the OECD in 2014 introduce the positive effects of higher education and the increasing number of those with a university degree, it is necessary to become aware of the mismatch between the number and structure of university graduates and labour market needs. This situation can result in graduates who have problems finding jobs that correspond to their level of education or to their field of studies. Due to the changing interpretation of what a university degree is, the data presented in the empirical part of this paper about part-time students indicate a relatively high level of overeducation as well as lower rates of returns from investing into tertiary education.

## 2. The value of a university degree

Strategic European and national goals have an impact on the number of tertiary education institutions as well as on the number of students enrolled in this level of education. On the other hand i.e. Krat'ková (2003) classifies the private motivation of students to get a university degree. In addition to the professional motivation (interest in a field of study), individuals decide to get a university degree for financial or functional reasons. Students select a field of study to expect their own satisfaction as well as sufficient remuneration earned from employer or as being self-employed.

The most important tasks of management of companies is to have “good human resource management”, which is a source of information about the human capital resources not only in terms of the potential the individuals or employees have, or as whole working groups/teams (Kunasz, 2008). A key part of HR activities represents training of employees, both on the job and off the job training. A long term off the job training includes also a qualification upgrading.

As Popescu (2012) emphasises employers have key roles in the skills formation system through workforce investment and workforce development. Continuous on-the-job training and knowledge transfer is usually accompanied by external training under various forms, including training courses or upgrading of qualification getting a higher degree in formal education (Popescu, 2012).

In some cases, a higher level of education of employees can be required from an employer due to the functional categorisation in a company. This situation is classified as a upgrading qualification in Czech legislation. The Labour code delimits conditions both for employees and employers emerging from this labour-law relationship.

### 2.1. *Qualification upgrading of employees*

The employer shall take care of its employees' professional (vocational) development. This shall include in particular:

- (a) induction training and on-the-job training;
- (b) professional practice for school graduates (internship);
- (c) improvement of qualifications;
- (d) qualification upgrading (MPSV, 2015).

“Qualification upgrading” shall mean a change in the level (value) of the person’s qualifications; it shall also mean the acquisition of a qualification or the extension of their qualifications. Qualification upgrading shall include studies, training and other forms of education for the purpose of attaining higher-level education (qualification) provided that this conforms to the needs of the employer.

This Code shall apply without prejudice to other statutory provisions regulating qualification upgrading. Where the employer and the employee conclude a qualification agreement in connection with the employee's upgrading of his or her qualifications, the agreement shall include the employer's commitment to enable this employee to engage in qualification upgrading and the employee's commitment to remain in employment with this employer for the agreed-upon period, however for no longer than five years, or to reimburse the employer for the costs that were related to this employee's qualification upgrading and which were settled by the employer, and this shall apply even if the employee's employment relationship is terminated before he or she completes his or her qualification upgrading. With regards to the employee's commitment to work for his or her employer for the agreed-upon period, the said period shall start to run as of the employee's completion of his or her qualification upgrading (MPSV, 2015).

The legislative framework given by the Labour code for upgrading the qualifications of employees does not often exist in companies in practice. Based on primary data presented in the following part of the paper, only approximately 2% of the respondents indicated that the employer required their qualification upgrading for functional reasons. The rest of the respondents initiated getting a university degree by themselves mainly to increase their opportunities to make professional changes in the future.

Popescu (2012) classifies the most important sources of funding of training as budgets of enterprises, individual's own sources or government or international (EU) funded programmes. Often we can find a combination of these sources.

Over the past two decades, some authors have talked about decreasing the importance of or devaluing university degrees as a guarantee of social growth (Euractive, 2013). Nevertheless, it definitely brings an added value of personality growth and makes the graduate more employable.

## ***2.2. Job and educational mismatches and university degrees***

The previous chapters point out the importance of higher education as well as the possible risks that are caused by an increasing number of people with a university degree (both bachelors and masters). One of the effects of the increasing number of university graduates, especially in selected fields, is a mismatch in level of education and specialisation and the skills of employees.

Overeducation and job mismatches have been defined by many authors. For example, CEDEFOP classifies overeducation as a situation in which an individual has more education than the current job requires (measured in years).

On the contrary, undereducation is a situation in which an individual has less education than the current job requires (measured in years). Overqualification is, according to CEDEFOP, a situation when an individual has higher qualifications than the current job requires. Vice versa, underqualification exists when an individual has lower qualifications than the current job requires (Cedefop, 2010; Hartog, 2000). However, some of the literature understands overqualification and overeducation to be synonymous terms.

As Chevalier, based on a study of background literature concludes, an empirical work relies on three approaches to measuring overeducation:

First, one's education is compared to their self-assessed qualification required to perform one's job. In addition, other authors point out that this is the most popular method used in empirical research and provides interesting internationally comparable data and is also used in the empirical part of this paper. Rašovec and Vavřinová term this method as a subjective (self-assessment) direct or indirect method.

Two other methods (more complicated to get primary data) are "expert" methods. In these methods, the definition of an educational requirement for a given occupation set by an expert is used. The third known method is the distribution of education calculated for each occupation; employees who depart from the mean or median by more than some ad hoc value (generally one standard deviation) are classified as overeducated (Chevalier, 2000). As the first mentioned method reaches quite easily the data from respondents, large surveys such as the European Social Survey and PIAAC (Programme for the International Assessment of Adult Competencies) survey also use it.

## **3. A survey of overeducation at the Faculty of Economics in 2014: data analysis**

To support information about the value of a university degree, a pilot survey collecting primary data focusing on educational mismatches as well as other aspects of a university

degree for part-time students in the Economic faculty of the Technical university of Liberec in the Czech Republic was carried out in 2014. The aim of this survey was to analyse the reasons why these students decided to get a university degree. Part-time students in the Czech higher education have a specific position, while there are mainly students who study and work at the same time. The author aimed to find out what was their motivation to be enrolled in a tertiary education system and get a Bachelor's or Master's degree (most of them continue in their studies to get a Master's degree since the Bachelor's degree is not sufficiently appreciated or accepted on the Czech labour market). The survey also searches for data about expected earnings after graduation as well as preferment after graduation to find out data about possible overeducation of these respondents.

A pilot survey was conducted on part-time Bachelor's and Master's degree students of the Faculty of Economics, Technical University of Liberec. The main aim of this survey was to obtain data about the value of the increased qualification from these respondents and their expected earnings as well as job matching. The author chose part-time students because of their previous experience with the labour market and the specific role of increasing qualifications for their current and future carrier.

The target groups of respondents decided to increase their qualifications by getting both Master's and Bachelor's degrees in the fields of economics and business administration.

### ***3.1. Research scope and methodology***

#### *Questionnaire structure*

The questionnaire contained 26 questions divided in two parts. Crucial for the topic of this paper was the first part of this questionnaire which searched for data about value of university degree for respondents – part-time students. The second part of the questionnaire aimed to find out information about vocational training of employees. After descriptive statistic data were taken for each student, they were asked about what characteristics described the educational level connected to their job position, expected earnings after upgrading their degree as well as information about support of these studies by employers. The intent was to find out their situation in any possible qualification mismatch. These questions in the questionnaire corresponded to the selected questions in the ESS surveys mentioned in this paper so that comparable results would be obtained for deeper analysis in the future. The subjective direct method described in the chapter 2.2 was used.

### ***3.2. Descriptive statistics of a pilot survey between part-time students at the EF TUL in 2014***

The author collected and analysed questionnaires from 118 respondents. 56 students were enrolled in the part-time Master's degree program for the 2014/2015 academic year and from them, 48 completed questionnaires were collected, which corresponds to an 86% response rate. In addition, 1st year Bachelor's degree students were also questioned. From the 84 students registered in the first year (2014/2015), 70 questionnaires (83%) were answered. All respondents were asked personally which ensured this high rate of return of questionnaires.

As mentioned above part-time students in the Czech higher education represents those who usually decide to upgrade their degree (for various reasons) after few years of working experience. Therefore the average age of Master's degree respondents was nearly 32 years, which is about 10 years higher than the EU average for full-time students. Czech full-time students were about the average age of all EU students, which was around 22.5 years

(Eurostat, 2014). This is significant for their practical experience with employment or self-employment.

From the gender point of view, more than 77% of the respondents were women and only 23% were men; for Bachelor's degree students, the average age was 28.5 years and there were significantly more female than male respondents (*see Table 2*).

Table 2. Number of respondents at EF TUL according to gender in 2014

Gender	Number of Respondents (1 <sup>st</sup> year students)	Response rate in %	Number of Respondents (5 <sup>th</sup> year students)	Response rate in %
Male	23	33	11	23
Female	57	67	37	77
Total	70	100	48	100

*Source:* author's calculation, based on own survey, Technical University of Liberec, 2014.

### 3.3. Expected earnings of EF TUL Respondents

From the employment data, only 4 respondents of the Master's degree students are not currently working. The rest of them identified themselves either as employees or as being self-employed. 7 Bachelor's degree students are unemployed, 3 of them are self-employed and 4 students are studying concurrently at other universities (these are not relevant for our survey and are not included in further calculations or the results of job matching).

From the answers of those respondents who have current working experience, there is a clear increase in earnings between their first occupation, current occupation (which confirms the value of experience and skills gained after entering the labour market) and expected earnings after earning a Bachelor's or Master's degree (*see Table 3 and Figure 1*). This finding also confirms data introduced by Urbánek, 2013, which presented the development of added value of an individual as the difference between the net and gross income of university and secondary school graduates and confirmed the economic advantage of a university education in the CR for the 2003-2010 period. These data are also related to the results of research on investment into education and human capital presented in previous papers by the author (Maršíková, Urbánek, 2013).

According to the results of this pilot survey, the respondents perceive education as an investment that brings them a future higher value of human capital represented by higher future expected earnings presented in *Table 3*. On average, Master's degree respondents expected an increase of their earnings of more than 5,700 CZK, while Bachelor's degree students expected after their graduation an increase of nearly 6,000 CZK. The numbers also indicate the difference between expectations of Bachelor's and Master's graduates as well as between earnings of respondents on current occupations (Master's degree students appraised their existing bachelor degree).

Table 3. Real and expected earnings of respondents according to gender in 2014

	Respondents (1 <sup>st</sup> year students)			Respondents (5 <sup>th</sup> year students)		
	First Occupation	Current Occupation	Expected Earnings after Graduation	First Occupation	Current Occupation	Expected Earnings after Graduation
Women Earnings in CZK	13,077	20,769	27,212	12,197	25,985	30,379
Men Earnings in CZK	15,455	27,738	34,432	12,955	29,318	39,318
Average Gross Earnings Earnings in CZK	14,414	23,405	29,453	12,386	26,818	32,614

Source: author's calculation, based on own survey, Technical University of Liberec, 2014.

Figure 1 illustrates the difference between male and female earnings and how the respondents take into account investment in qualification increases and the influence of experience and skills.

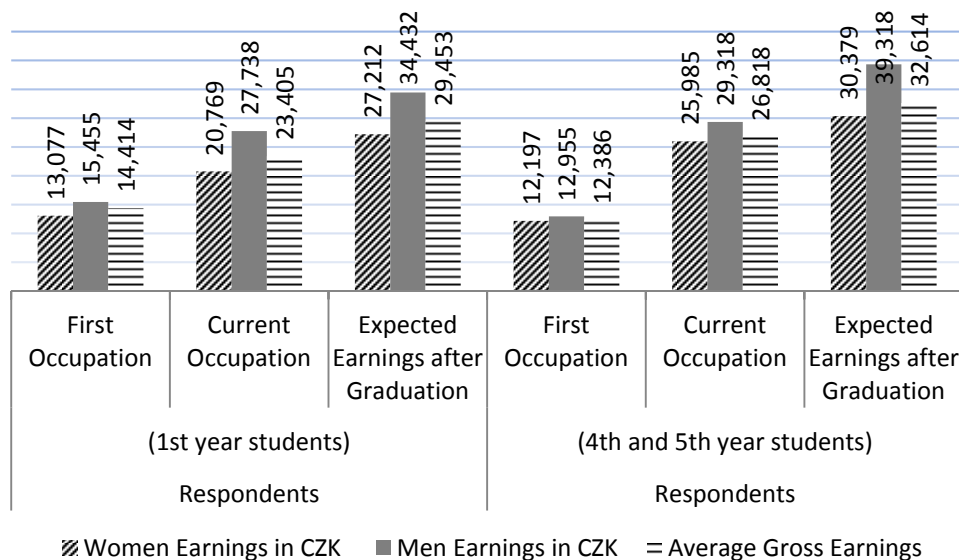


Figure 1. Absolute difference in real and expected earnings of part-time students in 2014/2015 in CZK

Source: author's calculation, based on own survey, Technical University of Liberec, 2014.

The data in Figure 1 show a growing difference in the gender pay gap both for Bachelor's and Master's degree students. It is surprising that women's expectations after getting a university degree reach only 77%, resp. 79% of men's earnings expectations, however, this only confirms the actual situation in the Czech labour market where also women earns less than their male colleagues.



### 3.4. Educational mismatches of EF TUL respondents

Since the respondents questioned in this pilot survey are individuals with labour market experience, the aim of this pilot survey was also to analyse how well their education (current and expected) matched their current job position. The respondents in the survey were asked whether their current occupation was adequate for their level of education. The author here used a subjective indirect method of searching for job mismatch data and a description of this method can be found in chapter 2 of this paper. Although this method has the limitation of subjective influence and a bias of evaluation, it is often used when researching job mismatches, overeducation and undereducation (e.g. European Social Survey 5, Programme for International Assessment of Adult Competencies, Urbánek, 2013).

Respondents were questioned whether they need a higher degree for their current occupation or not. They stated matching education to their current position. If their level of education was inadequate, they were to confirm whether their current level of education was lower or higher. The third question searched for information concerning whether they thought that their job position would improve after they obtained a master's degree.

For example, for Master's degree students, the survey identified only 15 of them who consider their current educational level (Bachelor's degree) as not matching their current occupation. Only 13 of those who are working expect that obtaining a Master's degree will help them to change their working position.

Table 4 shows from Master's degree students that 38 of the respondents suppose that their current level of education (a bachelor's degree) is sufficient or even higher than is required for working at their current occupations. If the author simply supposes that they will not change their occupations after getting a Master's degree, these respondents would become overeducated after getting their Master's degree. This means 86% would become overeducated in their current occupation. The data in Table 4 also show that 24 of them are already overeducated with their Bachelor's degree (which represents nearly 55%).

For Bachelor's degree students, 76% of the respondents indicated that secondary education matches their current job position. Only 19% are currently undereducated and getting a bachelor degree will mean for them that they will reach an adequate degree.

Table 4. Educational match/mismatch of the Faculty of Economics respondents in 2014

Degree Needed for Current Job	Number of Respondents (1 <sup>st</sup> year students)	Share of Respondent	Number of Respondents (5 <sup>th</sup> year students)	Share of Respondent
Secondary education	45	76%	24	54.5%
University degree Bachelor	11	19%	14	32%
University degree Master	3	5%	4	9%
University degree Ph.D.	0	0%	2	4.5%

Source: author's calculation, based on own survey, Technical University of Liberec, 2014.

#### *Investment and returns to education*

Many previous studies (see Becker (1993), Psacharopoulos (1995), Belfield (2000), Anchor (2011)) also point out that investment in higher education brings a high rate of returns. In the tertiary education previous studies claim the rate around 8%. This fact is connected with the issue of university degree value. If the graduate does not match efficiently

his or her level of education or specialisation it influences also this rate (which confirms i.e. Urbánek, Maršíková, 2015).

To find out the rate of return of these part-time students the author used a short-cut method which stands for a simplification however is usable for the data available from this survey. This method was firstly introduced by Psacharopoulos (1995) and is based on the difference between earnings of people with a different educational degree. For example for respondent – women, 1<sup>st</sup> year students the expected rate of return was 6.2%. For men in this group of respondent the expected rate of return was calculated as 4.8%. Comparing to these respondents expected rate of return on higher education of the 5<sup>th</sup> year students was on average 4.3%. These rates are lower than results of other previous studies mentioned above nevertheless they stand for a relatively high return comparing to other investments.

If the difference between current real earnings of respondents with secondary degree and expected earnings with university degree is used the author gets an information about an expected rate of return from this education. Nevertheless data from respondents in this survey claimed that this investment was not supported by employers based on conditions given by the Labour code. This means that respondents have additional costs to study the university including loss of earnings as well as educational mismatch which means lower rate of return. This confirms also conclusions of previous studies emphasising that educational mismatch influence negatively the rate of return on investment in higher education.

### ***3.5. Restrictions of research results***

The aim of the empirical part of this paper was to support previously published results (see i.e. Urbánek, Maršíková, 2015; Levels 2013) with primary data collected in a pilot survey conducted between part-time students of the Faculty of Economics, Technical University of Liberec. Despite the fact that this sample was limited only on a selected group of students and therefore the survey has limitations, the results show a similar direction of job and educational mismatch as well as aspects of a university degree value in the EES5 or PIAAC survey (Urbánek, 2013; Levels, 2013). The author is fully aware of the need of deeper primary data collection and analysis and plans to continue with their research in this field.

## **Discussion and conclusions**

Today, the importance of a tertiary education in developed countries is a crucial topic for governments, employers and individuals. Background literature in the past proved the importance of investing into education for all these subjects pointing out positive effects on them.

An increasing number of university graduates brings not only positive effects, but people in the labour market have to face problems with educational and skills mismatches. For example, data presented by Groot and Van der Brink estimate the average overeducation rate as measured by the self-reporting method to be 28.6% and the undereducation rate to be 15.5%. Some other authors mentioned above indicate an even higher rate of those who are overeducated. A similar proportion was confirmed by the primary data presented by the pilot survey taken from part time students at the Faculty of Economics, Technical University of Liberec. These students confirm that they expect higher earnings after getting a university degree. At the same time, most of them did not expect any changes in their current occupation and were not supported by their employer which also means an undervaluation this investment. This indicates that these students will become overeducated and to use their degree efficiently would mean changing their occupation or company.

However there exist several research and methodological limitations in this analysis (i.e. data presented in this paper represent only results of one economic faculty or only direct method to collect data about educational mismatch is used) this topic is definitely interesting for deeper research, data collection and recommendations in the future.

From the point of view of prospective students and recruiting companies, it is important to understand wage expectations based on information about returns on education and specifically overeducation and undereducation, which are sources of suboptimal job matches. The data presented in this paper definitely opens the door for further discussion. They pointed out that an increasing number of university graduates brings not only positive effects, but can also cause problems such as educational mismatches or lower returns on this investment. The value of a university degree has become a serious issue that needs to be solved not only by politicians, but also by the complexity of the entire system of public and private higher education.

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