ESTIMATION OF THE INVESTMENT CAPACITY OF UKRAINIANS FOR STUDYING IN EUROPE

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Abstract: The article is devoted to the study of the investment capacity of Ukrainian families - potential investors - to pay for educational and related (related to living abroad) services for children who seek to study at foreign universities. An indicator of investment educational ability is offered, which allows comparing the opportunities of Ukrainian individuals to cover foreign student expenses at the expense of wages. The calculations of the proposed indicator for the leading universities of Austria, Bulgaria, Greece, Germany, Poland, Romania, the Czech Republic and Ukraine are carried out. The research is carried out according to the proposed by the authors indicator of the comparison of annual expenses of students during the bachelor's studies in a foreign university with the average annual salary of Ukrainian individuals. For entrants, first of all Ukrainian, this indicator will allow to orientate in the ratio of annual expenses and annual income. For university leaders the proposed indicator can allow comparisons of the competitiveness of their higher education institutions, taking into account the solvency of Ukrainian consumers of educational services. For business and local governments in Central and Eastern Europe, this indicator can be useful in assessing the competitiveness of their territories in terms of attracting student youth. Student youth as well as local residents act as consumers of goods and services promote the development of local business and thus can be a source of filling local budgets. The article is a continuation of the publication of comparative studies on this topic.

KEYWORDS: STUDY PERIOD, INDIVIDUALS, ANNUAL STUDENT’S COSTS OF STUDYING, INVESTMENT CAPACITY FOR STUDYING.

JEL: H75; I23; I13.

1. Introduction

Admission of students to higher education is one of the important stages in the life of not only a single individual, initially a student, and later an independent specialist, but also for his family. On the one hand, parents seek to give the child a good education with the prospect of better employment, ensuring his well-being in adult life. On the other hand important aspect is the investment of available funds which is never enough for each family educational project. Specifically, family investment resources are limited. For some, these constraints are measured by costs at the most prestigious universities in the world, and for others – even in domestic universities with not the highest prices for educational services – by the cost of housing, food, transport, etc.

Undoubtedly, the quality of the education received is important for obtaining a promising future work. The quality of education is dedicated to many publications, in particular [1]. Applicants are interested in comparing the quality of education in universities of different countries [2–6]. At the same time universities are compared by country according to their image in order to provide further employment [7–9], with the opportunity to get education with minimal investment [9–10]. Some university studies generalize the results of scientific and practical searches of different directions through the definition of ratings [11]. However, from the point of view of investors of educational services provided by individuals – members of the family of a future student – an important issue is the costs of educational and related services during the student's training at the university. In Germany, since October 2014, training has become free [12; 13], which also has become beneficial for foreign students. In Poland, certain categories of foreign students can be taught free of charge [14; 15], including Ukrainians. However, the lack of payment for direct educational services does not mean the absence of other costs.

This study suggests a comparison of the value of educational and related services with the investment opportunities of Ukrainian individuals to pay for the student's education abroad. The costs of educational services and the costs of other services and goods in the country where the student studies must necessarily be compared to the incomes of potential consumers.

2. Proposed methodology of interstate comparative analysis of educational investment capacity of individuals

Estimating the investment potential of Ukrainians for studying abroad requires obtaining estimates of potential costs and income data of Ukrainian individuals.

Comparison of expenses during the period of studying at universities of different countries can be carried out in different ways. The first thing that enters into the minds of entrants is a direct comparison of prices for educational services. We used this method in a previous study, the results of which were published in the article on the results of the International Scientific Conference in Borovets (Bulgaria) in December 2018 [16]. In the article, in particular, we compare prices for educational services for foreign students in Austria, Bulgaria and Ukraine. Comparison of prices for educational services for foreign students is important from several points of view. Firstly, tuition for Austrian citizens is free. There are only certain collections for student non-governmental organizations. Secondly, the desire of entrants, in particular Ukrainians, to study abroad necessitates an analysis of not only academic differences in the educational programs of universities of Ukraine and other countries, but also in the financial aspects of foreign studies.

The second possible option of comparative analysis is to deepen understanding of the costs that a student can incur for a period of study. The ideas of the Bologna Process, the aspiration of students to implement academic mobility require the study of financial issues for staying in foreign universities. This leads to consideration not only of the prices for educational services, but also the costs associated with: obtaining a visa to study in a particular country; residence in the city (in a hostel or in a private residence); transport expenses for the carriage to the place of study and from the university to the place of residence; for food; participation in student public organizations, which may depend on obtaining certain privileges in the library, in providing utilities, etc. Thus, this second version of the comparative analysis is based on a comparison of expenses during the studies in Ukraine and in a foreign country.

The third way of comparing the advantages or disadvantages of obtaining university education services is to compare the relative indicators, which are defined as the ratio of student expenses during study with possible income, which a student can get by working in a free time. In this case, defining possible income can be based on either the minimum or the average wage in a certain region. It is
well known and this study shows that in different regions of Ukraine, the provinces of Poland, the federal states of Germany the level of remuneration is different. However, costs, for example, for rental housing, are also different.

The fourth option of comparative analysis can be built on the possibility of paying for educational services and covering expenses during the period of study abroad. Consequently, the comparison should be based on a relative indicator, which is defined as the ratio of student expenses during a period of study at a foreign university to family income at home (for Ukrainian students - family income in Ukraine). At the same time income can be determined both from the minimum and the average wage. Of course, the minimum wage of parents is unlikely to allow students to study abroad. However, the average wage is not so high in Ukraine to avoid preparing for the expenses for staying abroad. Registration fee for studying at a foreign university.

As an indicator of investment educational capacity of Ukrainian individuals for direct comparison of expenses incurred by students during the period of study at universities of different countries, we propose to take the ratio of annual amount of expenses during the period of study at the university to the average annual wage in a separate region of Ukraine.

The proposed indicator to some extent will allow us to answer the question of the sufficiency of the student's family income to cover the costs of study at a foreign university. Comparison of these indicators for different cities, countries can provide an opportunity for the student to choose the best option for obtaining educational services at the expense of family financial opportunities.

3. Prerequisites and means for solving the problem

To solve this problem, it is necessary to determine the background data for each country in which Ukrainian students can study. The student and his parents are undoubtedly interested in the cost of education and the amount of self-retention during the academic year in a certain European City. For our calculations, we have taken data for tuition fees for universities ranked first in national ranking. Accordingly, the cost of living is taken for cities where these universities are located. Chosen countries have long been interested by Ukrainians. These are Austria, Bulgaria, Greece, Germany, Poland, Romania, Turkey, and the Czech Republic. For comparison with the leading universities of these countries, we have taken Taras Shevchenko National University of Kyiv and the cost of living in Kyiv respectively. It should also be noted that in the calculation of the cost of living, we take into account not only the academic year, which is usually 10 months long, but whole 12 months. The desire to better understand the language of the country of study, the desire to learn more about the labor market and the conditions of employment, the need to some extent compensate for the costs of staying abroad cause many students (not only Ukrainians) to work and earn their own money throughout all 12 months in the year.

Educational services for foreign students at Austrian universities cost € / year 1,450.00. University of Vienna is the first according to the national university ranking in Austria. That is why we take the cost of living for students in Vienna, where it costs an average € 7,920.00 per year. (€ / month 660.00x12) [17]. Total student’s expenses for one year of study, including tuition and accommodation, will be € / year 2,370.00.

The cost of obtaining a specialty and diploma in Bulgaria is an average of 3,000 euros. For a good nutrition student must spend only 100 euros per month and 100-150 (we will accept an average of 125.00) euros for this period for current expenses (travel, etc.). For a monthly rent of an apartment or room in a hostel it will go 150 euros [18].

Thus, counting on average prices, the student's total expenses during one year of study at Sofia, at Sophia University “St. Clement Ohridsky”, will be € / year 7,500.00 (3,000.00+ (100.00 + 125.00 + 150.00) x12) = 3,000.00 + 4,500.00 + 7,500.00).

The University of Athens (National and Kapodistrian University of Athens) is the first Greek university to rank and, according to QS World University Ranking, holds 217th place in Webometrics [19]. Students from non-EU countries pay a tuition fee of EUR 1,500.00 per year for all study programs in Greece, including course books.

The average cost of living in Greece is approximately 750 euros per month. The visa fee is 120.00 euros. Thus, according to the given data, the expenses for the period of study at the University of Athens for a year are 10,620.00 euros.

Technical University of Munich is the first according to the national ranking of Germany and 61st – according to the QS World University Ranking. The annual amount of student’s expenses (mandatory fees based on accommodation, medical insurance, transport, special fees, etc.) or an additional fee is 11,946.80 € [20].

The University of Warsaw is the first according to the national ranking of Poland and the 60th according to QS World University Ranking. The annual tuition fee at the Faculty of Economics is € 2,000. Registration fee for studying in Polish is € 19.00, in English - € 200.00 respectively. In view of the rather strong desire to learn English, this value will be taken into account in the total annual costs. The amount of student's expenses during the year, including mandatory fees based on accommodation, medical insurance, transport, special fees, etc., or an additional fee is € 2,905.00. Accordingly, the total annual costs will be € 5,305.00.

The University of Bucharest is the first according to the national ranking of universities in Romania. The average cost of tuition for bachelor's is 2,430.00 €. Accommodation costs from 6.2 to 9.50 € / day. We assume that its value is 7.00 € / day, which will be 210.00 € / month and 2,520.00 € / year. Meals will cost 200.00 € / month and 2,400.00 € / year. The purchase of textbooks averages 300.00 € per year [22]. Transportation costs 50.00x12 = 600.00 € / year [23]. Thus, the average annual cost of a foreign student during studying at the University of Bucharest on average can be: 8.250.00 € / year (2,430.00 + 2,520.00 + 2,400.00 + 300.00 + 600.00).

The cost of annual tuition at Bilkent University for the 2018-2019 academic year is € 12,760.00 for foreign students and 37,120 TL (Turkish lira) for Turkish students (including value added tax) [24]. The average cost of living in Ankara, including housing, food, transport, communications and electricity, recreation and sports, is € 507.76 per month [25]. Accordingly, the annual costs of studying, which we count for 12 months, will amount to € 6,093.12. The average annual student’s expenses in Ankara at Bilkent University will be € 18,853.12 (12,760.00 + 6,093.12).

In the Czech Republic Charles University is the first according to national ranking. The cost of studying at Charles University is € 2,000.00 [26]. Residence in a dormitory on condition of a scholarship to reside is 160.00 € / month [27], or 1,920.00 € / year. The cost of living for two occupants is 78 € / month, or 936 € / year.

The cost of living in Ankara at Bilkent University will be € 6,093.12. Transportation costs 50.00x12 = 600.00 € / year. The cost of study for 2018-2019 academic year is € 37,120.00. Residence in a dormitory on condition of a scholarship to reside is 160.00 € / month [27], or 1,920.00 € / year. The cost of living for two occupants is 78 € / month, or 936 € / year.

Single room per person costs 157.00 € / month, or 1,884.00 € / year. Travel pass for the academic year is 95 € / year. The cost of travel is € 2.00. With a nutrition charge of 6.00 € / day, it will amount to 1,800.00 € for a period of study of 300 days. Other expenses (on the Internet, mobile communications, purchasing books, stationery, etc.) can be approximately 200.00 € / year [28]. Thus, calculating at minimum prices, the student's total expenses during one year of study in Prague, at Charles University, will be 5,031.00 € / year (2,000.00 + 936.00 + 95.00 + 1,800.00 + 200.00).

Taras Shevchenko National University of Kyiv is the first according to national university ranking in Ukraine. The estimation of student’s expenses during the year of study at Taras Shevchenko National University of Kyiv and in the city of Kyiv is presented in the table. 1

<table>
<thead>
<tr>
<th>Country</th>
<th>University</th>
<th>Cost of annual tuition</th>
<th>Cost of living</th>
<th>Total expenses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greece</td>
<td>University of Athens</td>
<td>€ 1,500.00</td>
<td>€ 7,500.00</td>
<td>€ 9,000.00</td>
</tr>
<tr>
<td>Germany</td>
<td>Technical University of Munich</td>
<td>€ 2,430.00</td>
<td>€ 12,760.00</td>
<td>€ 15,190.00</td>
</tr>
<tr>
<td>Romania</td>
<td>University of Bucharest</td>
<td>€ 12,760.00</td>
<td>€ 6,093.12</td>
<td>€ 18,853.12</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>Charles University</td>
<td>€ 2,000.00</td>
<td>€ 6,093.12</td>
<td>€ 8,093.12</td>
</tr>
</tbody>
</table>

An important aspect for presenting our further research is the definition of the average wage in Ukraine. The Government of Ukraine will announce the changes that should take place in the amount of wages during 2019. We will calculate the average wage in Ukraine as the average monthly salary multiplied by 12 months. Instead, to simplify the average monthly salary we will calculate as the average between the average monthly salary in January 2019 and the average monthly salary of 2020 [29], appropriately: (10129 + 11450) / 2 = 21579.2 = 10789.50 UAH. For the year, the average salary will be: 10789.50 x 12 = 129,474.00 UAH. According to the
The ratio of annual student’s expenses during studying and average wages is calculated according to the methodology proposed by the authors in the article [16]. This publication takes into account the minimum wage and tuition fees. This approach was due to the fact that the minimum wage in unitary countries such as Ukraine is the same for all administrative and territorial units.

The difference between this study and the above mentioned is at the calculation due to the average wage and expenses of a student during the period of study at the university. The minimum wage in Ukraine is unlikely to be considered as an investment educational resource to pay for studies abroad. According to the equation for calculating, the indicator of “the ratio of annual student’s expenses during studying at the university to the average salary in Ukraine” will take the following form:

\[ \frac{\text{Cost}_{\text{exp}}}{\text{Wage}_{\text{year}}} = \frac{\text{Cost}_{\text{year}}}{\text{Wage}_{\text{year}}} \]

4. Solution of the examined problem

The calculations performed according to the indicator proposed for the universities of Austria, Greece, Germany, Poland, Romania, Turkey, the Czech Republic and Ukraine are presented in Table 2. Output data for calculations is given above. The results of calculations for the universities under study are presented in Table 2.

### Table 1

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Indicators value for Taras Shevchenko National University of Kyiv and the city of Kyiv</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cost of the accommodation in dormitory, UAH / month</strong></td>
<td>500.00</td>
</tr>
<tr>
<td><strong>Cost of meals, UAH / month</strong></td>
<td>2,500.00</td>
</tr>
<tr>
<td><strong>Transportation costs, UAH / month</strong></td>
<td>450.00</td>
</tr>
<tr>
<td><strong>Other expenses, UAH / month</strong></td>
<td>300.00</td>
</tr>
<tr>
<td><strong>Total expenses, UAH / month</strong></td>
<td>3,750.00</td>
</tr>
<tr>
<td><strong>Total expenses, UAH / year</strong></td>
<td>45,000.00</td>
</tr>
<tr>
<td><strong>Cost of education, UAH / year</strong></td>
<td>33,430.00</td>
</tr>
<tr>
<td><strong>Total, UAH / year</strong></td>
<td>78,430.00</td>
</tr>
<tr>
<td><strong>Total, € / year</strong></td>
<td>2,659.55</td>
</tr>
</tbody>
</table>

### Table 2

**Results of calculating the indicator of investment educational capacity of Ukrainian individuals**

<table>
<thead>
<tr>
<th>Country</th>
<th>University / University Rating by National Ranking</th>
<th>Monetar y units</th>
<th>Average annual cost of education and related services, €</th>
<th>The average annual wage in Ukraine in 2019, €</th>
<th>Indicato r of investment educational capacity of Ukrain ian individuals, %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>for non EU students</td>
<td>Euro</td>
<td>2,370.00</td>
<td>4,390.44</td>
<td>53.98</td>
</tr>
<tr>
<td>Bulgaria</td>
<td>Sophia University “St. Clement Ohridsky”</td>
<td>Euro</td>
<td>7,500.00</td>
<td>4,390.44</td>
<td>170.8</td>
</tr>
<tr>
<td>Germany</td>
<td>Technical University of Munich / 1</td>
<td>Euro</td>
<td>10,620.00</td>
<td>4,390.44</td>
<td>241.8</td>
</tr>
<tr>
<td>Poland</td>
<td>The University of Warsaw / 1</td>
<td>Euro</td>
<td>5,305.00</td>
<td>4,390.44</td>
<td>120.8</td>
</tr>
<tr>
<td>Romania</td>
<td>The University of Bucharest / 1</td>
<td>Euro</td>
<td>8,250.00</td>
<td>4,390.44</td>
<td>187.9</td>
</tr>
<tr>
<td>Turkey</td>
<td>Bilkent University Private University / 1</td>
<td>Euro</td>
<td>18,853.12</td>
<td>4,390.44</td>
<td>429.4</td>
</tr>
<tr>
<td>The Czech Republic</td>
<td>Charles University of Technology Prague</td>
<td>Euro</td>
<td>5,031.00</td>
<td>4,390.44</td>
<td>114.5</td>
</tr>
</tbody>
</table>

analysis of calculations made it possible to demonstrate in the first approximation the advantages of the proposed indicator.

In practice, the use of this indicator will allow interested individuals and legal entities to meet their interests in choosing a university or attracting university entrants and additional human resources. University ranking by the indicator $\frac{\text{al} \text{ur} \text{an} \text{a}}{\text{al} \text{ur} \text{an} \text{a}}$ – the ratio of annual student’s expenses during studying at a foreign university to the average annual salary of an individual in Ukraine – is important for students, for their parents (families), for the authorities and for the management of territorial communities, for entrepreneurs. Typically, consumers of educational services, along with academic rankings, are also interested in financial indicators. Academic university rankings show the opportunities for obtaining quality education in different countries. The investment indicator allows us to determine not only the level of tuition fees (in some European countries, at least for certain categories of students, tuition is free), but also the ability of the family to pay for educational and related services during the study period.

5. Results and discussion

The calculations made allow us to form the rating of the leading universities of Central and Eastern Europe according to the indicator of investment educational capacity of Ukrainian individuals (Table 3). In this case, ranking is formed by increasing percentage, since the smaller the proposed indicator, the greater the ability of Ukrainians to invest in studying at a certain university.

Table 3
Ranking of the leading universities of Central and Eastern Europe by the indicator of investment educational capacity of Ukrainian individuals

<table>
<thead>
<tr>
<th>Country: University / University Rating by National Ranking</th>
<th>Indicator of investment educational capacity of Ukrainian individuals, %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria: for non EU students / 53.98</td>
<td></td>
</tr>
<tr>
<td>Ukraine: Taras Shevchenko National University of Kyiv / 60.58</td>
<td></td>
</tr>
<tr>
<td>The Czech Republic: Charles University / 114.59</td>
<td></td>
</tr>
<tr>
<td>Poland: The University of Warsaw / 120.83</td>
<td></td>
</tr>
<tr>
<td>Bulgaria: Sophia University “St. Clement Ohridsky” / 170.83</td>
<td></td>
</tr>
<tr>
<td>Romania: The University of Bucharest / 187.93</td>
<td></td>
</tr>
<tr>
<td>Greece: National and Kapodistrian University of Athens / 241.89</td>
<td></td>
</tr>
<tr>
<td>Germany: Technical University of Munich / 272.11</td>
<td></td>
</tr>
<tr>
<td>Turkey: Bilkent University / 429.41</td>
<td></td>
</tr>
<tr>
<td>Private University /</td>
<td></td>
</tr>
</tbody>
</table>

The data in Table 3 shows that the smallest investments are needed for studying in Austria and Ukraine. Bilkent University in Ankara, the capital of Turkey, needs the largest expense.

6. Conclusion

In the scientific planning we should emphasize the novelty of the proposed indicator of investment educational capacity of Ukrainian individuals – $\frac{\text{al} \text{ur} \text{an} \text{a}}{\text{al} \text{ur} \text{an} \text{a}}$ – the ratio of annual student’s expenses during studying at a foreign university to the average annual salary of an individual in Ukraine. The study conducted on the example of the leading universities of Austria, Bulgaria, Greece, Germany, Poland, Turkey, the Czech Republic and Ukraine has made it possible to rank the selected institutions of higher education by this indicator. The study showed the possibility of obtaining the necessary data to calculate the proposed indicator. The results of the

7. Literature

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