

Analysis of Applications for Applied Mathematics at Some Ukrainian Universities Over Recent Years

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ABSTRACT. The main purpose of this work is to identify patterns, trends, and causes related to the number of students applying to different universities.

KEYWORDS: applied mathematics, enrollment

I. Introduction

In 2024, the Applied Mathematics specialization at Odessa National Polytechnic University showed the lowest number of received students. Given this situation, I find it interesting to compare the data between ONU, ONPU, LNU, KPI, and other universities.

The first step is collecting data from the website [1]. With some manipulation, we obtained the following visualization, which shows how the number of applicants and received students has changed over the years.

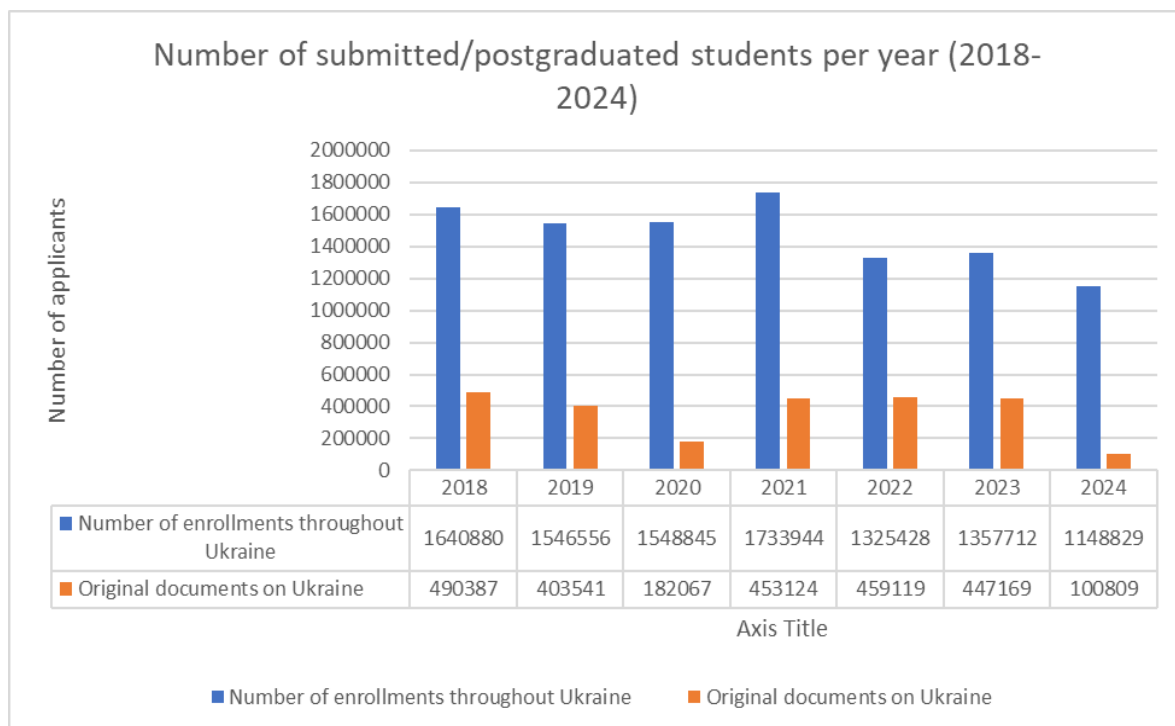


Fig. 1. Enrollments of students over the years.

As you can see from graph, the number of received students was not changed from year to year. The exceptions are 2020 and 2024 with the lowest indexes. It can be seen that although the number of applications in 2020 was the same as in 2019, the number of people who got into universities was almost two times less.

III. Exploratory Data Analysis

We will begin the exploratory data analysis with creating a pivot tables. With next table will show the number of students enrolled specifically in Applied mathematics among some universities.

Table 1

Row Labels	Sum of Applied							Total Sum of Applied
	2018	2019	2020	2021	2022	2023	2024	
Каразіна	156	127	144	145	77	82	65	796
КНУТШ	558	539	483	615	363	285	249	3092
КПІ	752	632	670	808	466	395	304	4027
ЛНУ	447	18	441	584	402	107	109	2108
ОНПТУ	92	85	89	93	53	38	25	475
ОНУ	136	132	130	170	80	69	59	776
Grand Total	2141	1533	1957	2415	1441	976	811	11274
Row Labels	Sum of Received							Total Sum of Received
	2018	2019	2020	2021	2022	2023	2024	
Каразіна	21	16	22	27	29	25	14	154
КНУТШ	85	88	92	93	73	55	62	548
КПІ	98	97	80	117	100	88	66	646
ЛНУ	70	0	69	101	84	25	20	369
ОНПТУ	11	11	6	17	6	5	0	56
ОНУ	41	45	37	48	36	25	28	260
Grand Total	326	257	306	403	328	223	190	2033

This table we will use for next visualization. The following visualizations help us understand the percentage of received students among universities per year. The logic is that each subcircle represents a year of received students, starting from the center of the circle (2018).

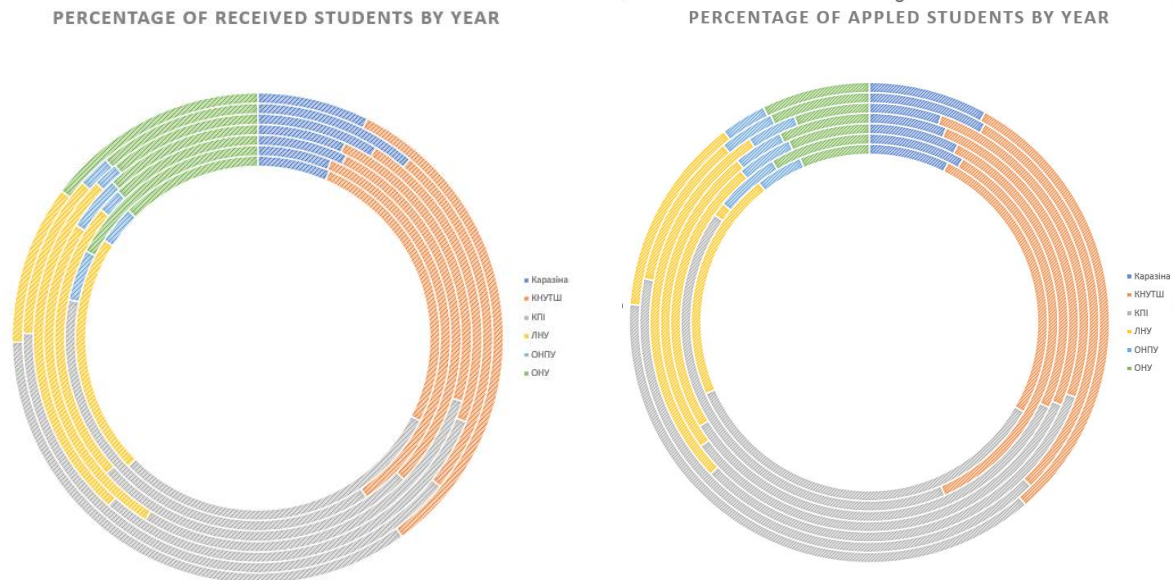


Fig. 2. Comparison of applied and received students per year and university

The leaders in terms of applications received and sent are КПІ, Шевченко and ЛНУ. In comparing the two graphs, we can replace the change in two universities, namely ОНУ and ОНПТУ. Although the share of those sending applications for admission in ОНУ is inferior to such

universities as КПІ or Шевченко, the percentage of those admitted is higher in comparison with the percentage of applications submitted. This may mean that students who decide to enter ОНУ choose it as their first priority or one of the first. The opposite situation is observed in ОНПУ, which may indicate less interest from students in entering ОНПУ and a lower priority.

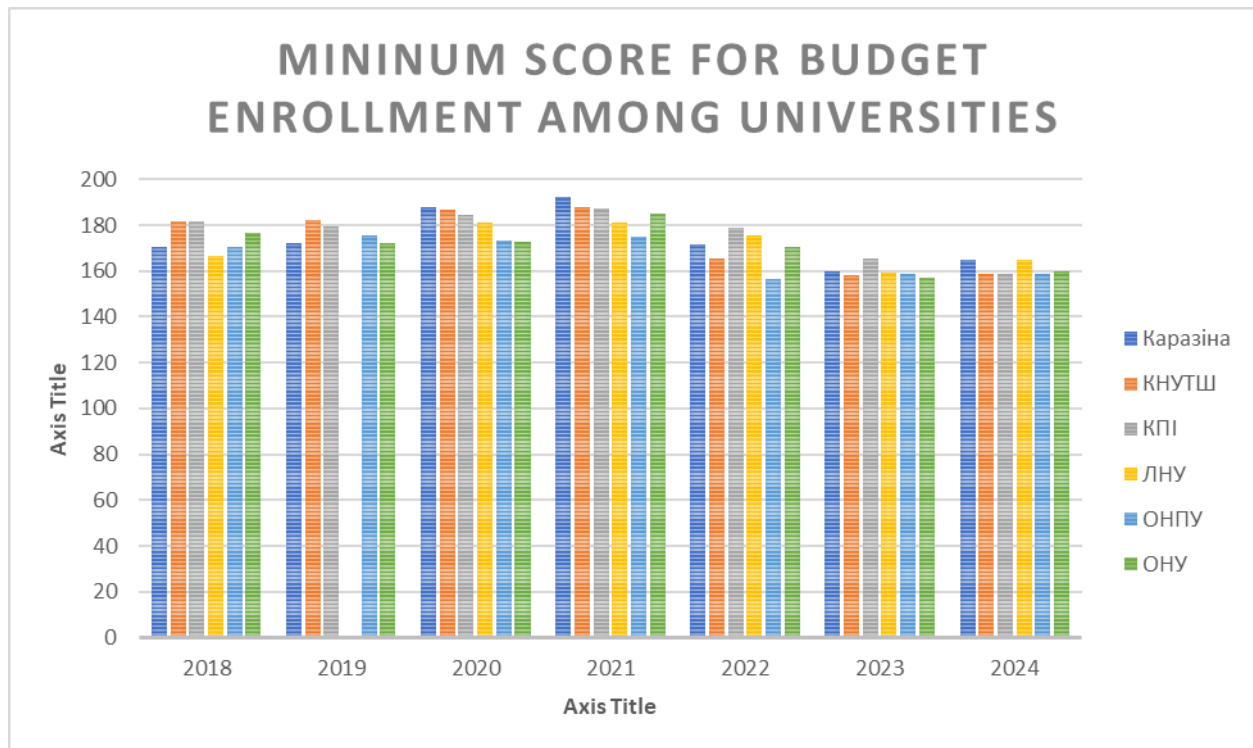


Fig. 3. Comparison score for budget enrollment

From this graph, you can see that the minimum exam score varied among those entering the budget. But in the last two years, there has been almost no difference in scores among those entering these universities. That is, the difficulty of competition should not affect the choice of university. You can also see jumps in assessment. This may be related to Covid and the war in Ukraine.

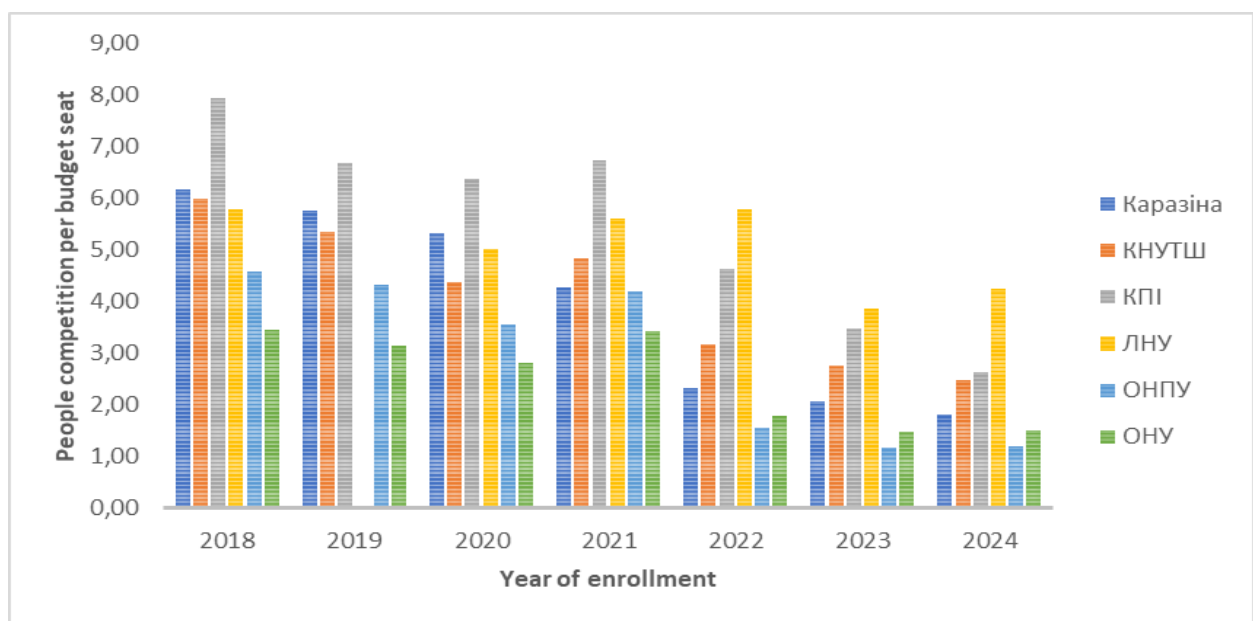


Fig. 4. Comparison people competition for budget enrollment

It can be seen that the competition for a budget place has fallen in the last two years compared to the previous ones. These changes are most likely related to the beginning of a full-scale war in Ukraine (2022). It has become much easier to enter all universities and based on the previous graph, the minimum passing score for a budget place is not high (158-164 points from 200)

IV. CONCLUSIONS

Having analyzed the data, I can say that over the past two years, the rates of admission of students to the university have changed. This analysis was done to understand what factors influence people's admission to Applied Mathematics at the Polytechnic. It can be said that the minimum passing score among universities is almost the same, which does not affect the choice of university. It has become easier to enter all universities, the number of applicants in 2024 is the lowest since 2018. Even in comparison with 2020, where the rate was very low in 2024, the number of people admitted has decreased by almost 2 times. The competition for admission to universities has become less. In this regard, there are assumptions that people, due to low competition and low passing scores, enter according to the first priority. And the priority of universities in 2024 can be correlated in the following sequence: КПІ, КНУТД, ЛНУ, Каразіна, ОНУ and ОНПУ.

V. References

- [1] <https://abit-poisk.org.ua/>