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Statistical Evaluation of the Quality of Educational Program “Economic Analytics and Statistics”, Students’ Satisfaction Level and Factors That Determine Them

In today’s changing world, training of specialists in any sphere requires a constant active search on the part of educational service providers for the development of relevant competencies of students of higher education, to ensure the correspondence of educational training to the modern needs of practice. That is why any educational program needs not only an internal but also an external audit aimed at its improvement. Understanding the factors that determine the quality of the program by chance is the basis not only for building a sustainable and competitive system of training specialists, but also for its successful practical implementation. Such a system should be based on providing feedback to students. One of the forms of such communication is a survey of students and graduates regarding the quality of the educational program and the level of satisfaction with education to find the factors that determine them. To achieve this goal, an expert questionnaire was developed, which includes three blocks of questions regarding the completeness of the program itself, its implementation in the educational process and in practice. A list of questionnaire questions is proposed, which potentially outline the range of problems of student training and possible ways to solve them.

To evaluate the quality of the educational program in different blocks of disciplines, its main advantages and disadvantages, comparative diagrams of factors that influenced the decision-making regarding admission were constructed. Considerable attention is paid to the comparative analysis of the distribution of grades depending on the educational level of training: bachelors, masters, graduates.

The implementation of the program in the educational process is considered in detail, namely: the level of teaching disciplines, their methodical support, and the evaluation system. The observance of the rules of academic integrity by teachers and students studying in the educational program and the organization of the educational process are analyzed separately. Questions were also asked that were supposed to reveal the need to implement certain actions to become a good specialist.

Special attention was focused on the retrospective evaluation of the educational program, which is a generalized measure of its quality, because it summarizes the respondents’ answers to the important question: “If you had the information, you now have about studying in this program at the university before entering, would you choose it?”. For this purpose, the authors proposed an approach to the analysis of the level of satisfaction with education using binary output models. The change in the probability of the outcome variables when the predictors change, and the reliability of the models were also evaluated. The capabilities of binary output models in confirming analytical assumptions are shown.

Proposals have been put forward regarding the possibilities of improving students’ attitudes towards the educational program and eliminating existing shortcomings.

Key words: *educational program, economic analytics and statistics, expert questionnaire, quality of the educational program, satisfaction with education, probit regression.*

Introduction. Making a decision regarding the choice of an educational program (EP) in the specialty 051 “Economics”, the entrant is guided by the factors on the basis of which their subjective impression of studying in the program and its objective value for

further work in the specialty are ultimately formed. It is very important to have a clear understanding of such factors, which makes it possible to predict the steps that will satisfy the main needs of the entrant, and accordingly, support and increase the motivation of students to enroll in an educational program and

remain in it in the future [1]. For this, it is necessary to understand the advantages of the educational program, i.e., how it qualitatively differs or can differ from competitors, its unique opportunities that can be provided to students [2].

With the aim of finding and analyzing the factors that determine the quality of the educational program not by a chance, a survey of students studying at the Taras Shevchenko Kyiv National University in the EP “Economic Analytics and Statistics” was organized in 2021 by first-year master’s students together with teachers of the Department of Statistics and Demography, and graduates of this EP. All master’s and bachelor’s degree students and more than half of graduates took part in the survey.

Methodology. The foundation of the information base was the expert survey questionnaire. The

questionnaire is presented in three blocks that characterize the content, implementation, and practical orientation of the educational program, as well as a block that contains general information about gender, age and educational level (EL):

Block No. 1. Content, substantiality, quality, orientation, formation of competences.

Block No. 2. Implementation of the educational program in the educational process.

Block No. 3. Implementation of the educational program into practice.

The questionnaire can be found at the following link: https://docs.google.com/forms/d/1IcNrrIwmoIZcusS0higJO_W3ebthc0PjJiOsJa9Pa8/edit

The basis of expert assessment is a scale represented by six levels (Table 1.a).

Table 1.a

Expert rating scale

Level	Very high	High	Medium	Low	Very low	Lacking
Score, points	5	4	3	2	1	0

Due to this, we can apply a standard approach to the study of distributions and use the wider possibilities of statistical analysis which provide the obtained expert assessments.

For analytical purposes and interpretation of aggregated scores, represented by average values, an interval rating scale was developed (Table 1.b).

Table 1.b

Interval rating scale for average values

Level	Very high	High	Medium	Low	Very low	Lacking
Score, x , points	$4,5 < x \leq 5$	$3,5 < x \leq 4,5$	$2,5 < x \leq 3,5$	$1,5 < x \leq 2,5$	$0,5 < x \leq 1,5$	$0 < x \leq 0,5$

According to the results of the survey, which was conducted among students of the “Economic Statistics and Analytics” specialty and its graduates in 2021, an information base was formed. 74 people took part in the survey, among which 64 people were active students at the time of the survey (48 bachelors and 16 masters), and 10 were graduates. All respondents are stratified by gender and educational level. Calculations were performed using Statistica 12 and SAS® On Demand for Academics software environment.

The results. Among the factors that influenced the decision-making regarding the choice of the EP, the most important was recognized as “compliance

with one’s own interests” – an average score of 4.11, which corresponds to a high level (Fig. 1).

It can be assumed that compliance with people’s own interest is the broadest formulation, which may duplicate other, more specific reasons. Almost the same value (above the medium level) was given to the factors “high probability of employment” and “high salary level”.

The main advantage of EP “Economic statistics and analytics” is a professional orientation of the program, noted by the respondents with a high score (more than 4, Fig. 2). The employability factor received an almost similar assessment.

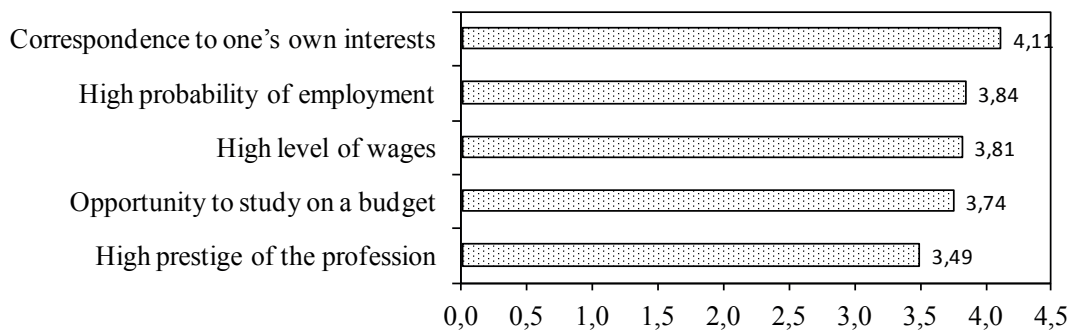


Fig. 1. The average score of the decision making on the selection criteria of educational program

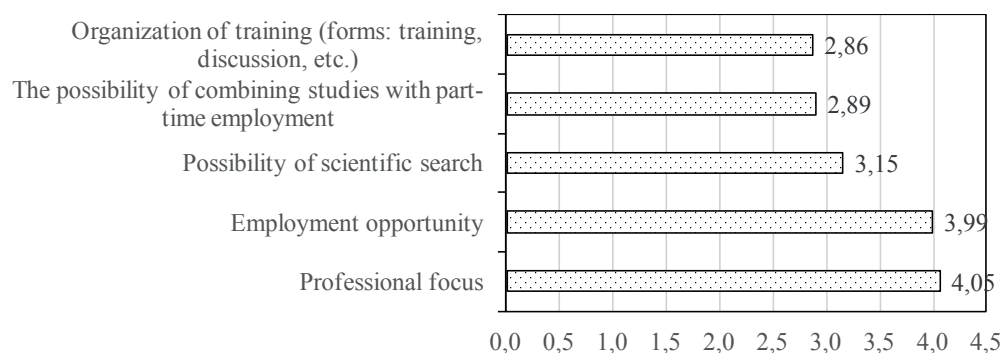


Fig. 2. Average assessment of the benefits of the educational program

The organization of education, the possibility to combine work (part-time employment) and studies were rated at the medium level. Also, the possibility of scientific research received not a very high rating (3.15), which may indicate potential problems with academic mobility for the profession.

There is a significant difference (50.2 percentage points) in the attitude of bachelors to the degree of expressiveness of the EP's professional orientation compared to other respondents, according to the chi-square test with Yates correction for continuity, this value is recognized as significant [3; 4]. Extremely few bachelors – only 22.9% of those surveyed – rated this indicator highly (4 or 5).

Compared to the combined group of masters and graduates, bachelors consider the advantage of employment more important (by 27.7 percentage points), according to the Yates Chi-square test, the differences are significant [3; 4]. Perhaps this

advantage is not such a priority for those already working. It is possible that, for the same reason, the opposite is the situation regarding the preference for combining studies with part-time employment (13.1 percentage points) – the estimate is significantly (Chi-square with Yates correction [3; 4]) higher for masters. Moreover, there is a significant correlation (0.44) of the combination of part-time studies with the educational level of the respondents.

The main shortcomings of the program are considered by students and graduates to be insufficient teaching of disciplines in English and limiting the possibilities of the independent choice of disciplines (Fig. 3). The degree of manifestation of these shortcomings was assessed by the respondents as medium. No significant differences were found in the distributions of aggregated scores for EP deficiencies by the educational level.

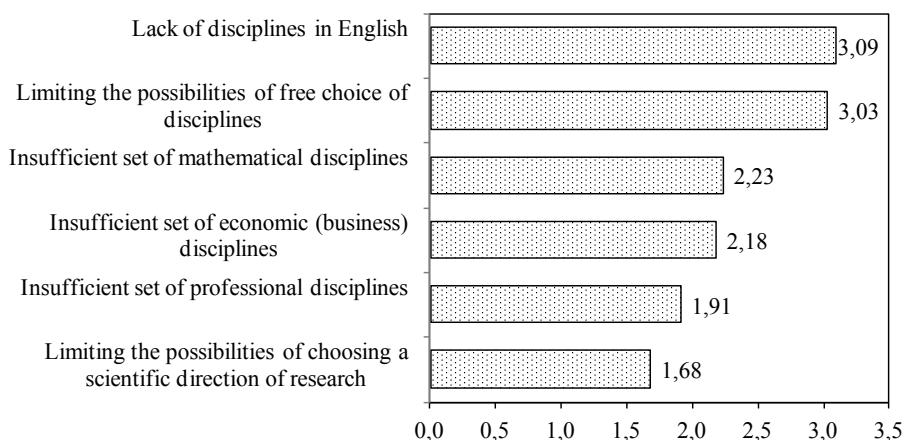
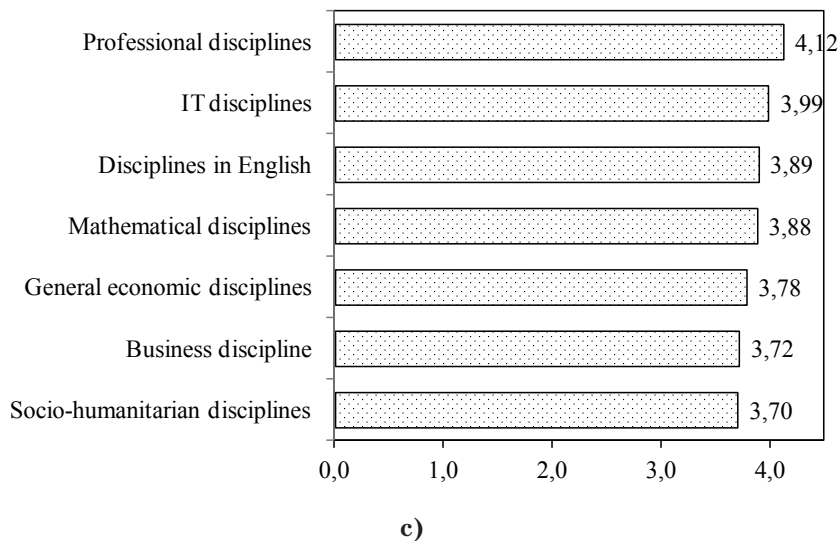
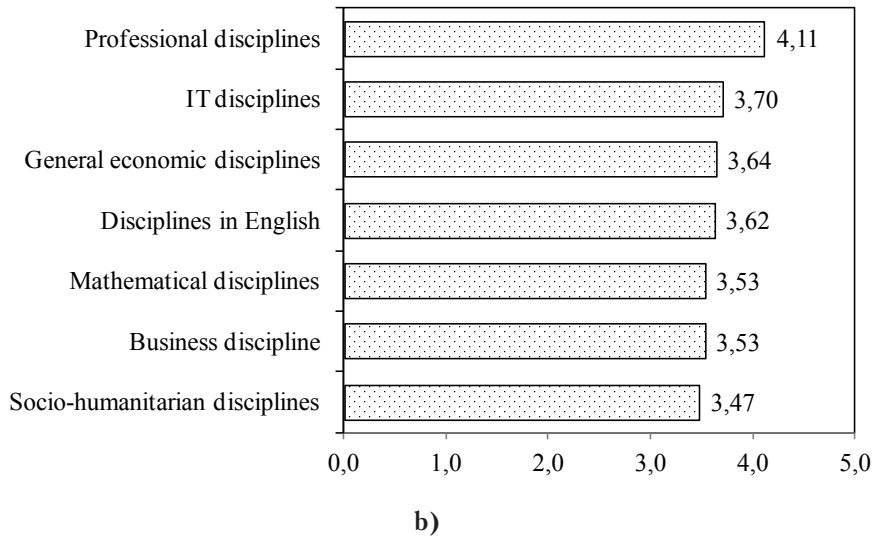
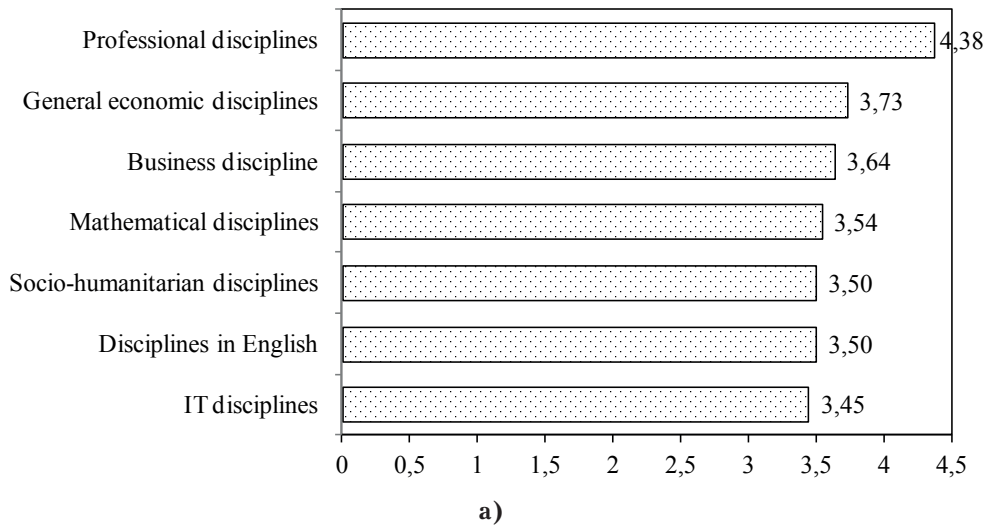


Fig. 3. Average assessment of shortcomings of the educational program

The highest by a significant margin is the level of teaching, provision of necessary accompanying materials and satisfaction with the evaluation system for professional disciplines (Fig. 4). The average score for the specified parameters is generally high (4.20). Compared to other blocks of disciplines, the general economic disciplines (the evaluation system needs improvement) and IT disciplines (it is necessary to raise the level of their teaching) received quite high average marks, albeit with some clarifications.

In general, the respondents highly rated all components of EP implementation in the educational process: apart from the problems mentioned above, the level of teaching subjects in English and the level of provision of socio-humanitarian disciplines were assessed with medium scores. The lowest average marks are for business and socio-humanitarian disciplines. Close to them is the assessment for mathematical disciplines, especially in terms of providing the necessary accompanying materials.



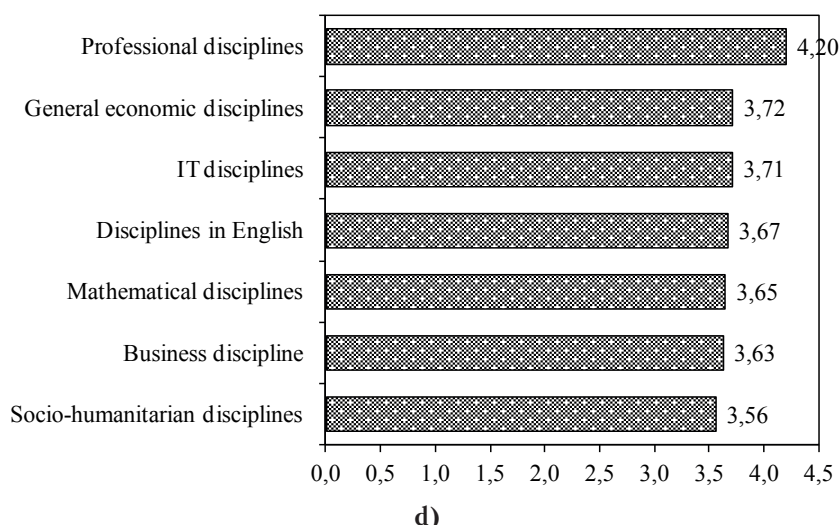


Fig. 4. The average grade of the level: a) teaching of disciplines; b) provision of disciplines with the necessary supporting materials; c) satisfaction with the evaluation system by blocks of disciplines; d) in general

The teachers of the Department of Statistics, Information and Analytical Systems and Demography have the best indicator of compliance with the rules of academic integrity (very high), Fig. 5. Somewhat lower (but high) – the teachers of the remaining departments of the Faculty of Economics, as well as

other departments of the university. The weighted average level of compliance with standards of academic integrity by students is high – 4.11. The highest average grade is 4.20 and 4.17 for EP graduates and bachelors, respectively, and it is slightly lower for master’s students – 3.88.

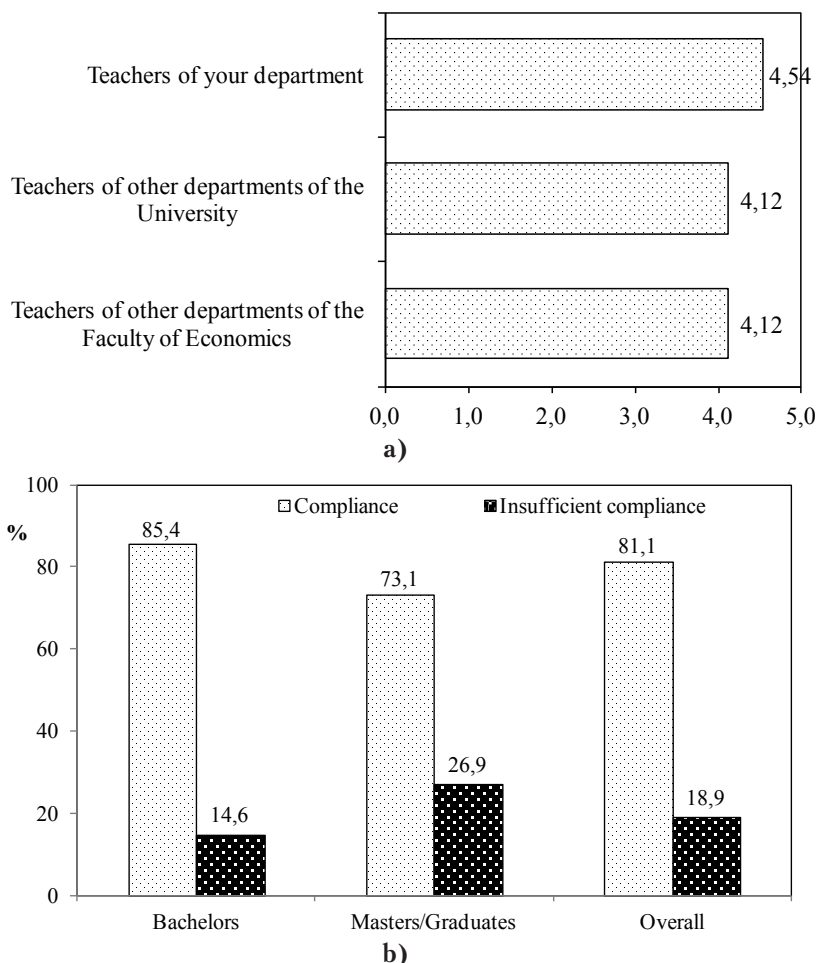


Fig. 5. The average assessment of the level of compliance with the rules of academic integrity by teachers (a) and the distribution of self-esteem of respondents depending on their status (b)

Regarding the level of organization of the educational process, the average score for the generalized indicator “the level of organization of the

educational process” is high (4.45), which is noted by all masters and graduates without exception (Fig. 6).

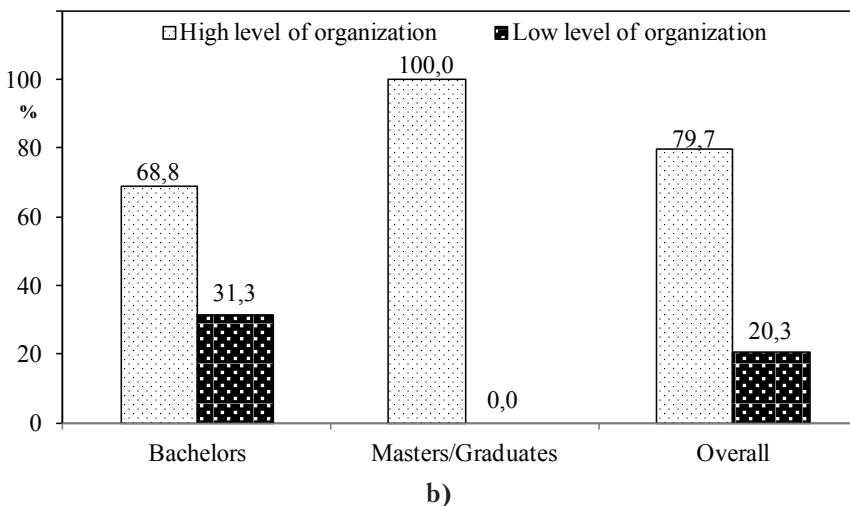
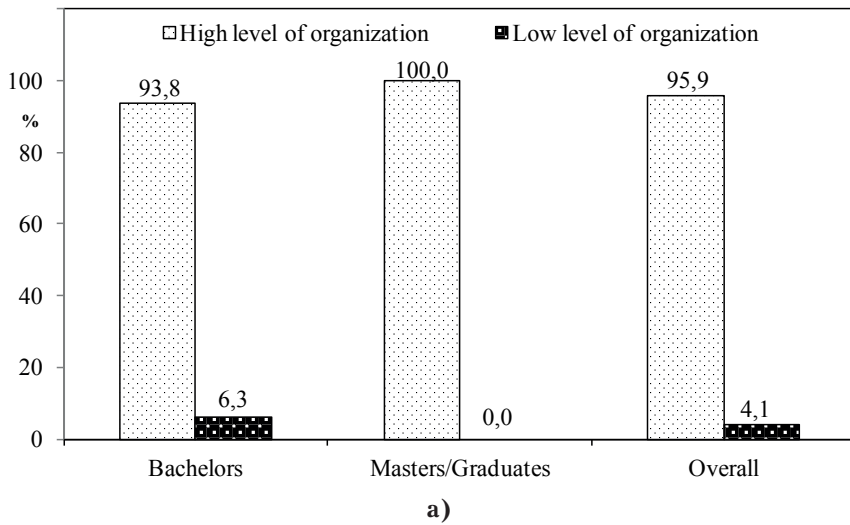


Fig. 6. The distribution of summary scores for the level of compliance with the schedule (a) and timely notification of changes in the schedule (b)

It seems surprising that undergraduates see some problems with communication: despite the presence of an electronic timetable, which is promptly provided to the supervisors and distributed among students, for this group according to the EL, the average score for the level of adherence to the timetable is 4.33, and for timely information about changes in the timetable – overall 3.85, that is, almost a third (31.3%) of bachelors consider the level of organization of such information to be insufficient (grades 1, 2 and 3). In addition, the differences between the group of bachelors and other respondents regarding the attitude to timely informing about changes in the schedule were recognized as significant (according to Fisher’s exact test), and the factor itself has an

medium rank correlation (0.31) with the educational level of the respondents. It can be assumed that there is a certain prejudiced attitude of bachelors to the level of organization of the educational process.

Respondents’ answers to the question: “Had you had the information you now have about studying at this program at the university before admission, would you have chosen it?”. A retrospective view of the educational program is as follows (Table 2).

As we can see from the Table 2, in general, more than a quarter of respondents in retrospect are dissatisfied with the EP under consideration. Bachelors, as expected, are more inclined to change their attitude towards the educational program: precisely one third of them did not indicate the option

Distribution of aggregated responses by EL

Status of the respondent	Response, amount (share, %)		Overall
	Yes of course	I would have chosen another program at the economics faculty of the university / another faculty / another university / I would not have gone to study at all (for masters)	
Bachelors	32 (66.7)	16 (33.3)	48
Masters/graduates	22 (84.6)	4 (15.4)	26
Overall	54 (73.0)	20 (27.0)	74

“would choose it again”. Among masters and graduates, only 15.4% reacted in a similar way. It can be assumed that the representatives of these EL, having passed the bachelor’s stage, already have a more formed idea, and therefore, more corresponding to the reality of expectations regarding their needs, therefore, they would have chosen that educational program for the second time. However, the differences between groups of respondents are not statistically significant.

A characteristic feature of the completeness of the educational program is the ability to determine the future type of activity or at least outline the field for further employment. For this purpose, the respondents were asked the question: “Have you chosen the type of activity that you will be engaged in after completing your studies at the university?”. The generalized results are presented in Fig. 7.

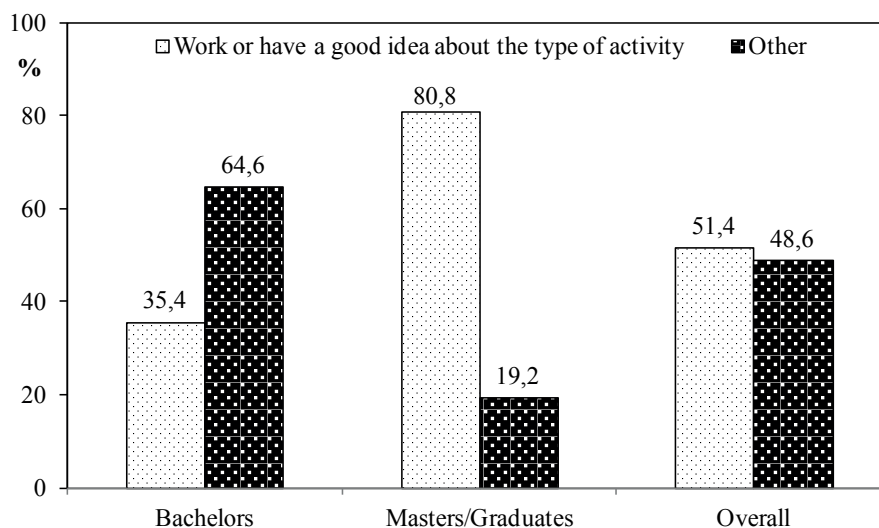


Fig. 7. Distribution of the degree of certainty regarding the type of activity after graduation from the university

Among the surveyed bachelors, a little more than a third are working or have a good idea of the type of activity, among masters and graduates, this percentage is approximately 81%. If we take particularly such distribution of answers (to include in the first group only those who simply have a good idea of the type of activity, in addition to those who are already working), the differences between the groups divided by the EL of the respondents are significant. Among bachelors, 14.6% are already working, masters – 56.3% (almost four times more), graduates – 80%. Half of bachelors and 82.4% of masters and graduates are satisfied with their first attempt. In general, 70.4% of

the respondents share this opinion. At the same time, among bachelors there is a much larger share of those who have a good idea of their future work activities – 20.8% against 12.5% among masters. The situation is similar with those who from time to time think about the type of activity after university (22.9% among bachelors, 6.3% of masters). It can be assumed that the bachelors indicated in this paragraph as predominant are to some extent integrated later into the employed master’s students, providing this group with an indisputable advantage in terms of the share of employed over bachelors.

It is interesting that the larger group of students are not those who clearly imagine the future type of activity, but those who doubt their choice. This situation is typical for both bachelors (39.6%, the

largest group among them) and masters (25.0%). This indicates the importance of conducting career guidance events, especially among bachelors, which is confirmed by the data in Fig. 8.

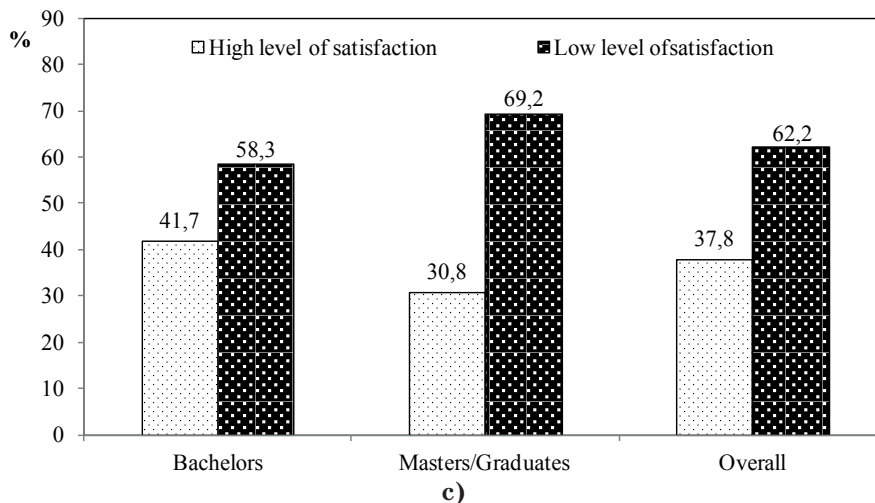
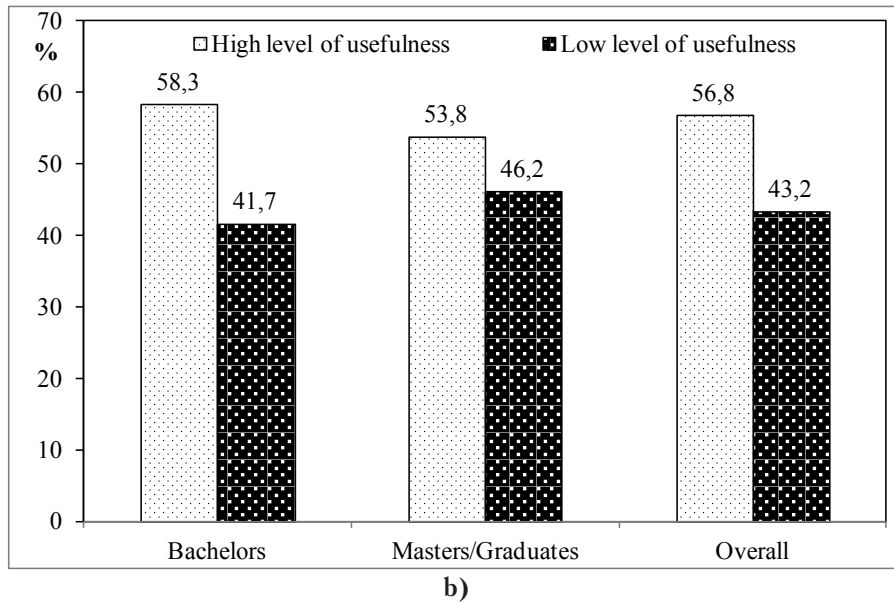
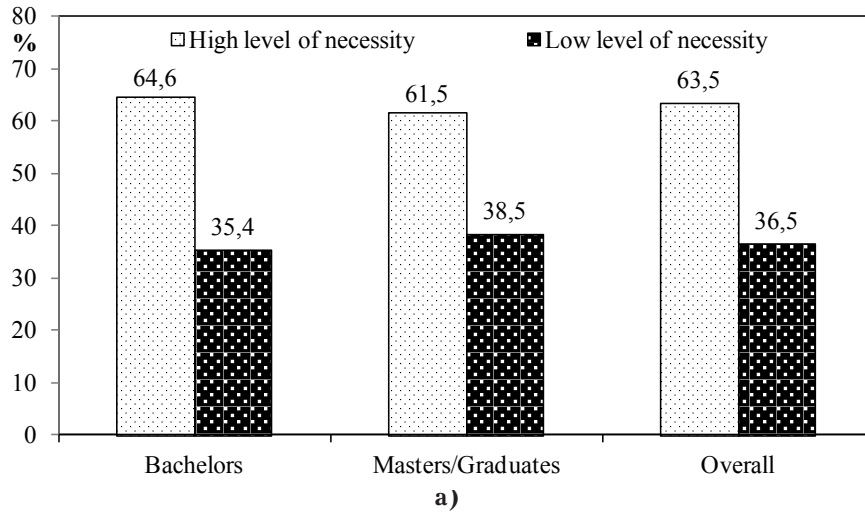


Fig. 8. Distribution of summary scores of the educational program during studying: a) the degree of necessity of vocational guidance work according to the program; b) degree of usefulness; c) degree of satisfaction with the program

Respondents consider it very important to try their hand at real work to be a good specialist - the average score is 4.73 (Table 3). The need to study throughout life is also indicated as important (4.28). The need to graduate from a specialized educational

institution and to collect as much information as possible about the profession are quite highly rated and have approximately the same value (3.76 and 3.80, respectively).

Table 3

Average score on the need for some actions to be a good specialist, by educational degrees

Status of the respondent	Necessary actions			
	Try your hand at real work	To study throughout life	Collect as much information as possible about the profession	To graduate from a specialized educational institution
Bachelors	4.75	4.21	3.92	3.73
Masters	4.56	4.44	3.63	3.88
Graduates	4.90	4.40	3.50	3.70
Masters and graduates	4.69	4.42	3.58	3.81
Overall	4.73	4.28	3.80	3.76

To analyze the factors that have a non-random effect on student satisfaction with education, a probit-regression model was developed [6–8]. The model is based on factors that are significantly correlated with the outcome variable, which is a binary outcome of the answer to the question whether the respondent would choose this EP again. Non-random correlations were found with the presence of professional work experience (0.49), which became a stratification factor. The Table 4 shows non-stratified data (All), data on respondents with professional work experience (Work), without work experience (All without work), as well as those who worked professionally and evaluate their first attempt at work positively (Work 4, 5) or negatively (Work 1, 2, 3). The model considers the following external factors (1–4), as well as university-dependent factors (5–12) [1]:

- 1) V_17 – the degree of satisfaction with the first attempt.
- 2) V_15 – the degree of confidence that the respondent will work in the profession in the future.
- 3) V_41 – assessment of the importance of compliance with one’s own interests as a factor that influenced the decision-making regarding the choice of EP.

4) V_194 – the degree of necessity for the respondent to study throughout his life in order to be a good specialist.

5) V_5_new – the average level of manifestation of EP advantages: professional orientation, employment opportunities, as well as training organization (for example, by forms: training, discussion, etc.).

6) V_6_new – degree of average manifestation of limitation of opportunities for independent choice of disciplines, as well as lack of disciplines in English.

7) V_7_new – average quality of teaching for IT, professional, business and socio-humanitarian disciplines.

8) V_8_new – average level of provision of the necessary accompanying materials for mathematical, IT, professional and socio-humanitarian disciplines.

9) V_9_new – the average level of satisfaction with the evaluation system at the EP.

10) V_10_new – the level of compliance with the rules of academic integrity by teachers.

11) V_121 – evaluation of compliance with the schedule in the training organization.

12) V_183 – degree of satisfaction with vocational guidance work.

Table 4

Rank correlation of the outcome variable with possible covariates

Factors	All	Work	All without work	Work (4, 5)	Work (1, 2, 3)
V_17	0.49*	0.49*	x	0.02	0.45
V_8_new	0.48*	0.45*	0.51*	0.46*	0.57
V_9_new	0.47*	0.37	0.51*	0.47*	0.29
V_7_new	0.46*	0.38*	0.51*	0.54*	0.66

Table 4, continued

V_5_new	0.45*	0.22	0.59*	0.47	0.18
V_15	0.38*	0.19	0.50*	-0.09	0.12
V_10_new	0.36*	0.33	0.39*	0.54*	0.53
V_183	0.35*	0.15	0.45*	0.54*	-0.56
V_194	0.34*	0.51*	0.23	0.14	0.49
V_41	0.33*	0.13	0.44*	0.04	0.06
V_121	0.26*	0.48	0.13	0.54*	0.15
V_6_new	-0.38*	-0.35	-0.41*	-0.29	-0.41

* Statistically significant estimates.

After checking the factors for normality of distribution and fitness and checking the model for adequacy, determining factors (predictors) were found that had a non-random effect on the answer to the question whether the respondent would choose the analyzed educational program again (Tables 5, 6). The Table 5 presents the following criteria [5, pp. 21–35]:

- AIC – Akaike information criterion: $AIC = (-2) \cdot \log L + 2k$, where k is the number of equation parameters (the number of variables + 1 is a constant term);
- SC – Schwartz criterion (or Bayesian information criterion, BIC): $SC = (-2) \cdot \log L + k \cdot \log n$, where n is the number of “1” values of the dependent variable, in our case, the number of respondents who would choose the educational program again;
- $(-2) \cdot \log L$ is the -2 criterion of the likelihood ratio test, which is the doubled logarithm of the likelihood (the difference between the probabilities of the model under consideration and the null).

Such factors turned out to be:

- 1) the quality of teaching of IT, professional, business and socio-humanitarian disciplines.
- 2) the level of providing the necessary accompanying materials for mathematical, IT, professional and socio-humanitarian disciplines.

As we can see from the Table 7, only 16.9% of observations were misclassified. This indicates good predictive capabilities of the model.

The analysis of the diagnostic tests (Table 8) showed that the model correctly predicts 81.1% of positive answers to the question whether the respondent would choose the EP “Economic Analytics and Statistics” again in view of the already gained learning and practical experience. The model has a very high sensitivity, but the specificity of the model is at the level of using a random number generator. Hence, the model adequately identifies almost all students motivated to study at the EP but does not provide any information about those who are

Table 5

Fitting and checking the adequacy of the probit-model

Criterion	Free member	Free member and covariates	Test	Chi-Square	Pr > Chi-Square
AIC	88.36	67.06	Likelihood Ratio	25.30	<.0001
SC	90.67	73.97	Score	22.39	<.0001
$(-2) \cdot \log L$	86.36	61.06	Wald	17.78	0.0001

Table 6

Maximum likelihood estimates for the probit-model

Factors	Estimation	Standard error	Wald Chi-Square	Pr > Chi-Square
Intercept	-5.0587	1.3371	14.3139	0.0002
V_7_new	0.8681	0.3863	5.0485	0.0246
V_8_new	0.6894	0.3677	3.5161	0.0608

Table 7

Association of predicted and observed probabilities

Percentage of consistency	82	Somers' D	0.651
Percentage of inconsistency	16.9	Gamma	0.658
Draw percentage	1	Tau-a	0.26
Couples	1080	c	0.825

Table 8

Association of predicted and observed probabilities

Correctly classified		Incorrectly classified		Percent				
Satisfied	Not satisfied	Satisfied	Not satisfied	Correctly classified	Sensitivity	Specificity	Pleased that they are correctly classified	Dissatisfied with being correctly classified
50	10	10	4	81.1	92.6	50	83.3	71.4

classified as potentially dissatisfied with studies – this requires additional analysis, most likely – at the level of an individual approach.

The results of the marginal effects calculation for this model (Table 9) showed that:

1) with an increase in the average score of the quality of teaching IT, professional, business, and socio-humanitarian disciplines by 1 point, the

probability that the respondent would agree to choose the EP again increases by 24.7 percentage points.

2) with an increase in the average score of the level of providing the necessary accompanying materials for mathematical, IT, professional and socio-humanitarian disciplines by 1 point, the probability of choosing EP increases by 19.6 percentage points.

Table 9

Determination of marginal effects of covariates

Parameter	Rating	Average	Score× Average	The value of the standard normal distribution function	Marginal effect
Intercept	-5.0587	1.0000	-5.0587	x	x
V_7_new	0.8681	3.7027	3.2143	0.2844	0.2469
V_8_new	0.6894	3.8685	2.6670	0.2844	0.1961
Total	x	x	0.8226	x	x

Calculations were performed according to the following formulas:

$$f(Z) = \delta p / \delta Z = (1/2 \pi)^{0.5} \cdot \exp(-0.5 Z^2),$$

$$\text{Marginal effect} = \text{Estimate} \cdot f(Z).$$

Despite the low specificity of the built probit-regression model, its use made it possible not only to identify real, statistically significant possible influencing factors, but also to estimate the change in the probability of this decision when the predictors change. Average points of teaching quality and the level of provision of the necessary accompanying materials for various blocks of disciplines turned out to be such factors of influence. Due to the lack of normality of the distribution, the probit-regression did not include the factor of having work experience in the specialty, with which the greatest correlation was observed with the respondent's decision to choose EP again.

Conclusions. Based on the results of the analysis, it can be concluded that the EP “Economic Analytics and Statistics”, being unique in its kind, received generally positive evaluations from students. The main advantage of the mentioned EP is the professional orientation of the program, which was noted by the respondents with a high score. The employability

factor was also highly rated. Respondents consider it very important to try their hand at real work to be a good specialist. At the time of the survey, every fifth bachelor, more than half of the masters and almost all the graduates were already working in their profession, most of whom were satisfied with their first attempt. The level of teaching, provision of accompanying materials and satisfaction with the evaluation system is also the highest (by a significant margin) for professional disciplines. The best indicator of the level of academic integrity (very high) according to the assessment of students and graduates of the program is precisely the teachers of the Department of Statistics, Information and Analytical Systems and Demography.

It should be noted that due to the extremely low specificity of the constructed probit-regression model, its use made it possible to identify an important characteristic that affects the decision, in fact, determines the success of this EP and characterizes its quality. Thus, the respondent's decision to choose the EP “Economic Analytics and Statistics” largely depends on the quality of teaching of IT, professional, business and socio-humanitarian disciplines, as well as the level of methodical support of IT, professional and socio-humanitarian disciplines.

Discussion. At the same time, it is necessary to outline certain problems that make a little more than a quarter of respondents to be dissatisfied with EP in retrospect:

1. Extremely few bachelors – only 22.9% of those surveyed – gave the professional focus of EP a high rating (4 or 5).

2. Compared to the combined group of masters and graduates, bachelors consider the advantage of employment more important. At the same time, the respondents indicated dissatisfaction with career guidance and as a result, among the surveyed bachelors, slightly more than a third are working or have a good idea of the type of future activity. Also, the larger group of students are not those who have a good idea of the future activity, but those who doubt the choice, both among bachelors and masters. The problem intensifies if we consider that the share of bachelors who have already worked in their specialty (every fifth) is much lower than the share of bachelors who have a high degree of confidence that they will work in their specialty in the future (every second). For masters and graduates these estimates are almost identical.

3. There is a negative trend towards deterioration of graduates' assessment of the degree of usefulness and satisfaction with career guidance work.

4. The main disadvantages of the program are considered by students and graduates to be the lack of teaching in English and the limited opportunities for independent choice of disciplines.

5. Respondents consider the system of evaluation of general economic disciplines unsatisfactory, and the level of teaching of IT disciplines also needs serious improvement. As for business and socio-humanitarian disciplines, they are assessed at the average level. The situation is similar for mathematical disciplines, especially in terms of the level of provision of necessary supporting materials.

6. It seems that masters consider the level of provision of the necessary supporting materials for

disciplines in English to be insufficient: two thirds of bachelors consider this level to be high, while among masters and graduates such an assessment was received from only slightly more than a third of respondents

7. Almost a third of bachelors consider the level of organization of informing about changes in the timetable insufficient, which is strange, given the availability of electronic timetable, which is promptly provided to the headmen and distributed among students.

8. Given the extremely low specificity of the built probit-regression model, its use allowed to identify statistically significant factors and an important characteristic that affects the decision and determines the effectiveness of the studied EP. As for students who are potentially dissatisfied with their studies, in our opinion, this requires additional analysis, which should be based on an individual approach, as it is possible that there may be a subjective component.

According to the identified problems, we consider it reasonable to make the following proposals for improving the educational program: to increase the number of professional disciplines; to improve career guidance; to increase the level of organization of information about changes in the schedule, especially for bachelors; to actively involve graduates in career guidance work with students; to provide greater opportunities for free choice of disciplines by expanding the relevant list of disciplines; to increase the number and improve the provision of necessary supporting materials for the courses taught

The specified sequence of survey items allowed not only to effectively identify the factors that significantly affect the satisfaction of students with the EP, but also to see significant, often statistically significant differences between students. This provides opportunities for further detailed analysis of the resulting contingency tables in any combination of selected strata, as well as for the use of logit and probit-regression methods.

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Статистичне оцінювання якості освітньої програми “Економічна аналітика та статистика”, рівня задоволеності студентів навчанням та факторів, що їх визначають

У сучасному мінливому світі підготовка фахівців за будь-яким напрямом вимагає постійного активного пошуку з боку надавачів освітніх послуг задля формування актуальних компетентностей здобувачів вищої освіти, щоб забезпечувати відповідність освітньої підготовки сучасним потребам практики. Саме тому будь-яка освітня програма потребує не тільки внутрішнього, а і зовнішнього аудиту, спрямованого на її удосконалення. Розуміння факторів, що не випадково визначають якість програми, є основою не тільки побудови стійкої та конкурентоспроможної системи підготовки фахівців, а й успішної її практичної реалізації. Така система має ґрунтуватися на забезпеченні зворотного зв'язку зі здобувачами освіти. Однією з форм такого зв'язку є опитування студентів і випускників щодо якості освітньої програми та рівня задоволеності навчанням з метою пошуку факторів, що їх визначають. Задля реалізації зазначеної мети розроблена експертна анкета, яка включає три блоки запитань щодо наповненості самої програми, її реалізації у навчальному процесі та на практиці. Запропоновано перелік запитань анкети, які потенційно окреслюють коло проблем підготовки студентів та можливих способів їх вирішення.

Для оцінювання якості освітньої програми за різними блоками дисциплін, її основних переваг та недоліків побудовано порівняльні діаграми факторів, які вплинули на прийняття рішення щодо вступу. Значну увагу приділено порівняльному аналізу розподілу оцінок залежно від освітнього рівня підготовки: бакалаври, магістри, випускники.

Детально розглянуто реалізацію програми в навчальному процесі, а саме: рівень викладання дисциплін, їх методичне забезпечення та система оцінювання. Окремо проаналізовано дотримання правил академічної доброчесності викладачами та студентами, що навчаються на освітній програмі, й організацію навчального процесу. Також поставлені запитання, які мали виявити необхідність запровадження певних дій, щоб стати хорошим спеціалістом.

Особлива увага приділена ретроспективній оцінці освітньої програми, що є узагальненою мірою її якості, адже підсумовує відповіді респондентів на важливе запитання: “Якби ви володіли інформацією, яку ви зараз маєте про навчання на цій програмі в університеті перед вступом, чи обрали би ви її?”. З цією метою авторами запропоновано підхід до аналізу рівня задоволеності навчанням з використанням моделей бінарного виходу. Також оцінено зміну вірогідності результативних змінних при зміні предикторів та достовірність моделей. Показано можливості моделей бінарного виходу в підтвердженні аналітичних припущень.

Висунуто пропозиції щодо можливостей покращення ставлення студентів до освітньої програми та усунення наявних недоліків.

Ключові слова: освітня програма, економічна аналітика та статистика, експертна анкета, якість освітньої програми, задоволеність навчанням, пробіт-регресія.

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