ECONOMIC ASSESSMENT OF THE EFFECT OF FAMILY INCOME ON STUDENTS' DISCIPLINES

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Abstract

The importance of higher education in scientific research, its role in poverty reduction and population growth has been studied theoretically. Also, when using the data of social surveys conducted by 538 respondents (students) studying in higher education institutions, they were awarded the Order of the logistics regulator in the economic assessment of the factors influencing the rate of mastery of disciplines. Factors influencing the acquisition of subjects by students: the main income of the family comes from non-farm (69,9 %), sex (52,2 %), studying at a higher education institution on a state grant (108,8 %), the student's course of study (29,2 %), the student's place of study in the subject area (210,4 %), permanent residence 1 percent (p <.01) was found to be statistically significant. Also, the higher the rate of mastery of subjects by male (male) students than by female (female) students and students living permanently in urban areas by students permanently residing in rural areas. There are scientifically based conclusions and recommendations for students to increase the rate of mastery of subjects in higher education institutions.

Key words: higher education institutions, subject mastery index, family income, income from poor economic activity, Order logistic regression model, marginal impact.

ТАЛАБАЛАР ТОМОНИДАН ФАНЛАРНИ ЎЗЛАШТИРИШГА ОИЛА ДАРОМАДИ ТАЪСИРИНИ ИҚТИСОДИЙ БАҲОЛАШ

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Аннотация

Илмий тадқиқот ишида олий маълумотга эга бўлиш аҳамияти, унинг камбағалликни қисқартириш ва аҳоли фаровонлигини оширишда ўрни назарий ўрганилган. Шунингдек, олий таълим муассасаларида таҳсил олаётган 538 нафар респондент (талаба)ларда ўтказилган ижтимоий сўровнома маълумотларидан фойдаланилган ҳолда, улар томонидан фанларни ўзлаштириш кўрсаткичига таъсир этувчи омилларга иқтисодий баҳо беришда Ordered logistic регрессия моделидан фойдаланилган. Талабалар томонидан фанларни ўзлаштиришига таъсир этувчи омиллар: оиланинг асосий даромади, ноқишлоқ хўжалик фаолиятидан келиши (69,9 %), жинси (52,2 %), олий таълим муассасасида давлат грантида ўқиши(108,8 %), талабаларнинг таҳсил олаётган курси (29,2 %), талабанинг ўқиш ҳудуди (210,4 %), доимий яшаш ҳудуди (53,5 %), фанларни ўзлаштиришда фойдаланилган манбалар ва олий таълим муассасаларида ўтказиладиган танловларда талабалар иштироги 1 фоиз (р<.01) ликда статистик муҳим аҳамиятга эгалиги аниқланган. Эркак (ўғил) талабаларга нисбатан аёл(қиз) талабалар ҳамда доимий яшаш ҳудуди шаҳарда бўлган талабаларга нисбатан қишлоқ ҳудудида доимий яшайдиган талабалар томонидан фанларни ўзлаштириш кўрсаткичи юқорилиги келтирилган. Олий таълим муассасаларида талабалар томонидан фанларни ўзлаштириш кўрсаткичини ошириш борасида хулоса ва таклифлар берилган.

Таянч сўзлар: олий таълим муассасалари, фанларни ўзлаштириш кўрсаткичи, оила даромади, ноқишлоқ хўжалик фаолиятидан келадиган даромадлар, Ordered logistic регрессия модели, маргинал таъсири.

ЭКОНОМИЧЕСКАЯ ОЦЕНКА ВЛИЯНИЯ ДОХОДА СЕМЬИ НА УСПЕВАЕМОСТЬ СТУДЕНТОВ

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Аннотация

В научно-исследовательской работе теоретически изучены значение получения высшего образования, его роль в сокращении бедности и повышении благосостояния населения. Модель регрессии Ordered logistic использовалась для экономической оценки факторов, влияющих на успеваемость, с использованием данных социального опроса 538 респондентов (студентов), обучающихся в высших учебных заведениях. Факторы, влияющие на успеваемость студентов: основной доход семьи, доходы от несельскохозяйственной деятельности (69,9 %), пол (52,2 %), обучение в высшем учебном заведении по государственному гранту (108,8 %), курс обучения студентов (29,2 %), территория обучения (210,4 %), постоянное место жительство, источники, используемые для освоения предметов и участие студентов в конкурсах, проводимых в высших учебных заведениях, статистически значимы на 1 проценте (р <.01). Приведены, показатели успеваемости студентов, постоянно проживающих в сельской местности, и они выше, чем у студенток-девушек по сравнению со студентами-парнями, а также студентами, постоянно проживающими в городской местности. Представлены выводы и предложения по повышению успеваемости студентов в высших учебных заведениях.

Ключевые слова: высшие учебные заведения, показатель усвоения дисциплин, доходы семьи, доход от несельскохозяйственной деятельности, модель регрессии Ordered logistic, эффект marginal.

Introduction. The COVID-19 pandemic has affected global poverty and income inequality. The impoverishment of more than 108 million people by 2021 [1] threatens the future of the younger generation [2]. First of all, the literacy rate among 15–24-year-olds in the world increased by 5.2% between 2000 and 2019 [3], which has a negative impact on its growth in the context of a pandemic [4,5]. Researchers [6] emphasize the importance of human capital as a key economic factor in the country's sustainable economic growth. Sustainable economic growth depends on living standards, affluence, the quality of socio-economic infrastructure services provided to the population and the capital at the disposal of the population. However, the formation of capital at the disposal of the population directly depends on the level of education of the population, their literacy. However, the level of education of parents in the family or their literacy affects the income of the family and the level of education of their children. However, factors related to poverty, such as unemployment, disease and illiteracy of parents in the world, reduce the level of education of young people by half. It is also scientifically justified that in the conditions of the COVID-19 pandemic, the per capita income will decrease by 5%, and the number of the world's poor will exceed 80 million by 2018 [7]. However, the increase in the number of poor or low-income families affects the level of education of family members.

Education is an important way to change the social status of children from low-income families, as family income has a significant impact on a child's level of education, and an increase in family income improves their level of education [8]. Also, the level of education of parents, family income and learning abilities are important factors in choosing education [9]. That is, the family's income and the child's individual ability to influence a child's ability to attend college or university have a significant impact on the child's ability to attend college or university [10]. However, state budget constraints on higher education, and increased requirements for higher education, reduce access to higher education for children from low-income families. As a result, it can lead to an increase in poverty among the population. The quality of education and the development of infrastructure services, which are key factors influencing the formation of a competitive environment among higher education institutions, limit access to higher education for the rural population, especially the children of the poor. . However, the support of the state budget for the education of children from low-income families in rural areas has a negative impact on the reduction of poverty among the population.

Higher education [11] is based on secondary special, vocational education, consisting of bachelor's and master's degrees. The number of higher education institutions in Uzbekistan in 2020 was 131, compared to 2016 - 54. In addition, the number of students has increased 2.1 times in the last 5 years, while the coverage of young people with higher education has increased by 16% [https://edu.uz]. However, the fact that the educational process in higher education institutions is organized on a fee-for-service basis limits the ability of family members to study at higher education institutions, and affects the acquisition of subjects by fee-paying students. The education of family members or the full mastery of subjects in education is directly related to family income. Acemoglu D. and Pischke J.S [12] scientifically substantiated in their research work that a 10% increase in family income has the effect of increasing enrollment in education by 1.4 points. However, income is generated from income from agricultural and non-agricultural activities [13], and researchers have not studied the extent to which these sources of income affect the acquisition of science.

However, Sari R. and Soytas U. [14] has scientifically proven that it is effective to invest in primary, secondary and higher education to increase income in research work. Money spent by a student's family to educate a student is a long-term investment, the payback period of which depends on the student's mastery of the subject. However, the value of investments made by parents for their children depends on whether they are engaged in agriculture or non-agricultural activities. Although the involvement of family members in non-agricultural activities reduces the number of working hours in agriculture, it does not affect the reduction of family income [15]. The main purpose of our research is to provide an economic assessment of the factors influencing the acquisition of subjects by students in higher education and to provide scientifically based conclusions and recommendations for improving their knowledge. The description of the survey data obtained from students of higher education institutions operating in Uzbekistan and the methods used to achieve this goal are described in Section 1 of the research. The economic assessment of the factors influencing the mastery of the subjects by the students, i.e., the results of the model analysis, are presented in Section 2 of the paper. In addition, the conclusions and recommendations made on the basis of the results of the analysis obtained in the research work, the literature used are given.

Problem statement. An online survey was used to study this scientific article. The survey was conducted in March, taking into account that the indicators of mastering the subjects taught by first-year students in higher education institutions in the 1st semester correspond to January and February. 568 respondents (students) took part in the survey. However, the model was not accepted as a variable because 30 respondents did not fully respond to the queries.

Questionnaire - an average indicator of a student's mastery of subjects (satisfactory, good, excellent), the main income of the family (agriculture, non-farm activities), a permanent good area (rural, urban), a student. other areas), course of study, form of education (part-time and evening, full-time), form of study (fee-for-service, state grant), age, gender, sources used in the study of subjects and participation in competitions organized by higher education institutions [16] formed by. According to the description of the survey data (Table 1), the participation of respondents in the independent and related variables is different, which can be expressed in the fact that the surveys were not fully answered.

The average subject mastery of the respondents was 2,142, indicating that the majority of the participants mastered the subjects with good and excellent results. The share of non-agricultural income in the main income of their families is 48.4%, which can be expressed in the number of families located in urban areas. However, the fact that 38.5% of the respondents live permanently in urban areas shows that the main income of some households located in rural areas is the income from non-agricultural activities. The form of education of students is important in the study of subjects, 22.9% of respondents study on the basis of state grants. However, we cannot say in which higher education institution he studies on the basis of a state grant or a contract. However, 46.0% of respondents study at a higher education institution located in another area (province or city). The sources used by students in the study of subjects were: a set of subjects, the library fund of the higher education institution, books and lecture notes uploaded to the site, other Internet sources and the library fund as an indicator. It shows that the majority of students use 2 or more sources in the study of subjects. Also, 28.0% of respondents participated in various competitions organized in higher education institutions.

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Table 1

Description and statistics of respondents
(Data of the public opinion poll conducted by the author)

№	Variable	Obs	Mean	Std. Dev.	Min	Max
1	Average mastery index, (MI)	544	2.142	.569	1	3
2	Basic family income, (FI)	545	.484	.500	0	1
3	Sex, (S)	545	.684	.465	0	1
4	Age, (A)	545	21.804	3.251	17	32
5	Studies at the HEI on a state Grant/scholarship, (SG)	545	.229	.421	0	1
6	Form of education at the HEI, (FE)	545	.938	.242	0	1
7	Course of study, (CS)	545	2.075	1.412	1	6
8	Situations of the HEI, (SHEI)	541	.460	.499	0	1
9	Permanent residence area, (RE)	545	0.385	0.487	0	1
10	Sources used in the study of science, (SS)	544	2.347	1.193	1	5
11	Participation in competitions at HEI (PC)	542	.280	.450	0	1

Research methodology. Strong bonding between two or more independent variables [17] leads to an increase in standard error. That is, by exaggerating the standard error, the multicollinearity makes some independent variables statistically insignificant. In order to determine this situation, a diagnostic test was conducted to ensure that the results obtained are stable. The VIF (Variation Inflation Factor) test was performed for independent variables in determining multicollinearity [18]. The VIF test is a measure of the amount of multicollinearity in a set of multivariate variables. Mathematically, for a variable of the regression model, the variance of the VIF general model is equal to the variance of the model, which includes only one independent variable. This ratio is calculated for each independent variable. It is well known that the high level of VIF [19] has a negative effect on the outcome associated with multiple regression analyzes. However, according to our VIF test results, its average value is 1,290, which shows that there is no multicollinearity among the variables. In the economic assessment of the impact of independent variables on the dependent variable, the Order Logistic Regression model was used. This model is appropriate because we have a dependent variable, that is, a qualitative or orderly variable [20], which is an indicator of the average mastery of subjects by students. That is, in a research paper, the answer variable is taken into account on a page consisting of more than two explanatory variables [21]. Using the computer program STATA-16, students were given an economic assessment of the independent variables that affect the rate of mastery of subjects by this model.

Analysis of results. According to the results of the analysis (Table 2), the income of the family from poor economic activity in the study of subjects by students is statistically significant at 1% (p <.01). The fact that the main income of the family is formed at the expense of income from non-farm activities increases the percentage of students learning subjects by 69.9%.

However, the fact that students are male is statistically significant at 1% (p <.01), reducing the rate of mastering subjects by 52.2%. In other words, women in higher education show a higher rate of mastery of subjects than men. However,

Table 2

Analysis of economic assessment of the factors influencing the rate of mastery of subjects by students

№	MI	Odds Ratio	Std. Err.	z	P>|z|	[95% Conf.	Interval]	Sig
1	FI	1.699	.342	2.63	0.009	1.144	2.521	***
2	S	.478	.102	-3.47	0.001	.315	.725	***
3	A	.958	.038	-1.06	0.289	.885	1.036	
4	SG	2.088	.476	3.23	0.001	1.335	3.265	***
5	FE	2.849	1.284	2.32	0.020	1.178	6.892	**
6	CS	1.292	.119	2.78	0.005	1.078	1.547	***
7	SHEI	3.104	.682	5.16	0.000	2.018	4.775	***
8	RE	.465	.105	-3.38	0.001	.297	.724	***
9	SS	1.246	.103	2.68	0.007	1.060	1.464	***
10	PC	2.424	.533	4.02	0.000	1.575	3.732	***
cut1		-1.15	1.029	.b	.b	-3.167	.868	
cut2		2.932	1.039	.b	.b	.896	4.968	

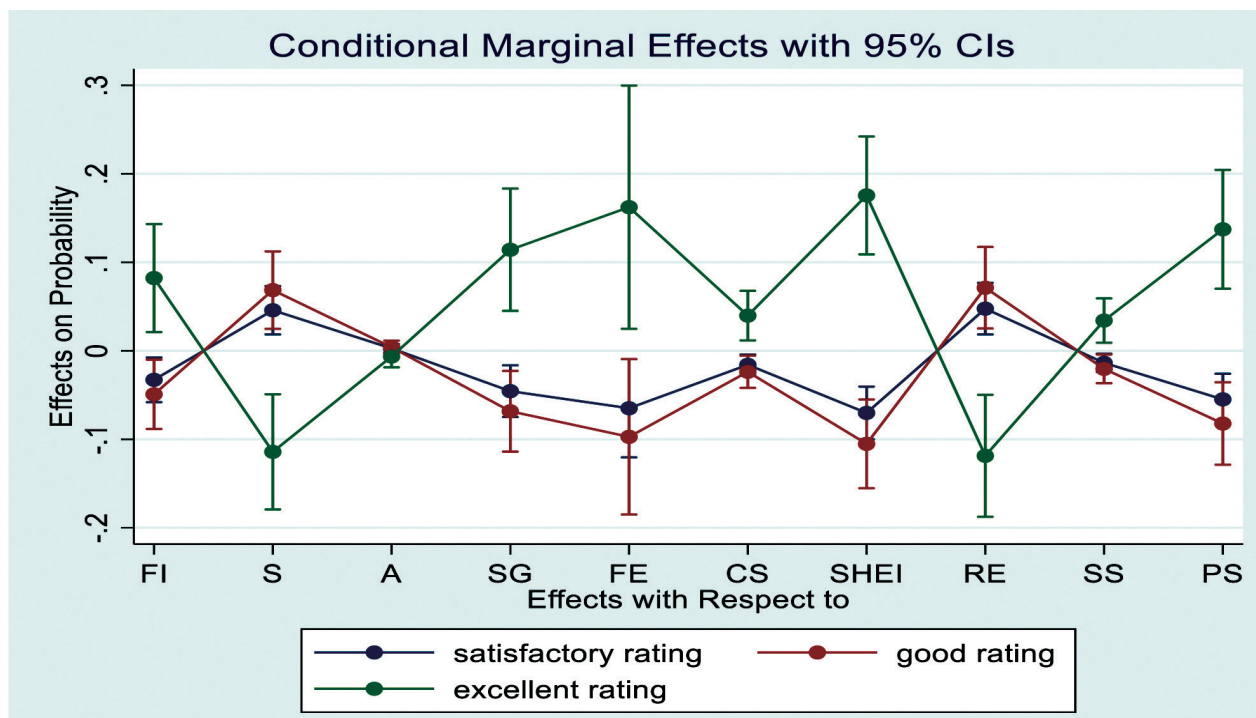|				
Mean dependent var	2.138		SD dependent var	0.569
Pseudo r-squared	0.147		Number of obs	538.000
Chi-square	134.264		Prob > chi2	0.000
Akaike crit. (AIC)	805.372		Bayesian crit. (BIC)	856.826

*** p<.01, ** p<.05, * p<.1*

Figure 1. Marginal influence of factors influencing the rate of mastery of subjects by students

the fact that student's study on the basis of a state grant, the mastery of subjects by them is statistically significant at 1% (p <.01). The fact that student's study on the basis of state grants increases the percentage of subjects they learn by 108.8%. In particular, there is a correlation between the amount of scholarships for students in the higher education system and the rate of mastery of subjects by students studying on the basis of state grants. However, students studying on a fee-for-service system without a stipend can have a negative impact on their academic performance. Higher education institutions in Uzbekistan have full-time, part-time and part-time forms of education, and the fact that students study full-time subjects is statistically significant at 5% (p <.05). However, full-time education of students increases the rate of mastering subjects by 184.9%. However, the fact that students live permanently in the city shows that they reduce the rate of mastering subjects by 53.5%. In other words, 1% (p <.01) of statistically significant students who live permanently in rural areas explain that they can master subjects better than students who live permanently in urban areas. The fact that student's study in higher education institutions in other regions (regions, cities) is statistically significant at 1% (p <.01), and the rate of mastering subjects can be increased by 2.1 times. In particular, students may live in rented apartments or dormitories during their studies at a higher education institution in a remote area or city, which may affect their ability to study subjects or be free from household chores. The increase in the number of resources used by students in the study of subjects will increase the rate of mastering subjects by 24.6%. This indicator is statistically significant at 1% (p <.01), which explains the enrichment of higher education institutions with science-related literature. Also, the organization of various competitions in higher education institutions, in which the expansion of student enrollment will increase the rate of mastering subjects by 142.4%. In particular, this indicator is statistically significant at 1% (p <.01) and encourages students to learn more subjects in order to participate in or

win competitions. The marginal effect of family income on poor household activities in students' mastery of subjects is explained by a probability of 0.08 (Figure 1).

However, we can see that female (female) students learn subjects better than male (male) students. Also, students with a permanent residence in a rural area are more likely to get an excellent grade than students with a permanent residence in an urban area. The fact that students study at higher education institutions located in other areas explains the marginal impact on their mastery of subjects by 0.17.

Conclusions and suggestions. The population living in remote rural areas can have a higher education, at least they can be self-employed (self-employed). However, the rate of mastery of subjects by students studying at a higher education institution is influenced by their family income. In other words, if the income of a family is formed mainly from the income from non-agricultural activities, the increase in the rate of mastering a subject in the process of studying at a higher education institution by a family member is scientifically based on 69.9%. It was also found that students living in rural areas have a higher rate of mastery of subjects than students living in urban areas. In particular, young people with permanent residence in a rural area can have a positive impact on their ability to study in a higher education institution in the regional center or elsewhere, in which time they have the opportunity to study subjects, and in household chores. The introduction of restrictions on the transfer of students studying in a higher education institution located in another area in the system of higher education to a higher education institution in their territory (province) has a positive effect on the growth of students' mastery of subjects. However, in the long run, family income affects students' ability to study. However, the organization of various competitions among students in higher education institutions, the encouragement of participants and winners of competitions, on the one hand, has a positive effect on family income, on the other hand, has a positive effect on the growth of student learning.

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