

OPTIMIZATION OF A STATE FINANCING MODEL OF VOCATIONAL COLLEGES

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Abstract. The paper presents the results of the quantitative sociological research. The basic factors which essentially determine the attitude of students to vocational education are identified and analyzed, which on its part is one of the important prerequisites for the formation of a rating system of vocational colleges and for the optimization of the model of their financial support by the state.

რეზიუმე. სტატიაში წარმოდგენილია რაოდენობრივი სოციოლოგიური კვლევის შედეგები. მათ შორის, იდენტიფიცირებული და გაანალიზებულია ძირითადი ფაქტორები რომლებიც არსებითად განსაზღვრავს სტუდენტთა დამოკიდებულებას პროფესიული სასწავლებლის მიმართ, რაც, თავის მხრივ, პროფესიული სასწავლებლების სარეიტინგო სისტემის ფორმირებისა და სახელმწიფო დაფინანსების მოდელის ოპტიმიზების ერთ-ერთ მნიშვნელოვან წინაპირობას წარმოადგენს.

Post-Soviet Georgia is faced with complex and multivariate challenges of modernization. In the process of integration into the modern democratic world and formation of an independent state one of the most urgent tasks is to make the education system match the up-to-date international standards. Proceeding from the fact that the reform of the education system takes place against the background of acute economic problems, it is very important to use such methods that are directed not to additional investments but to an optimal distribution of the existing resources, which will make it possible to get a maximal effect at minimal expenditures.

Resolution of the Government of Georgia, No. 244 [1] dated September 19, 1913 (On the Determination of the Order and Terms of the Financing of Vocational Education and Confirmation of a Maximal Payment for the Study in Vocational Education Programs) established the rules and terms

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of a financial support given by the Government to the vocational education in Georgia.

According to these rules, every student receives—according to his profession—a voucher of financial support that exceeds a minimal payment amount needed for his training. As a result, after students finish their training course, a certain amount of money (“surplus”) remains in the possession of the college which the latter can spend at its discretion for the purpose of development of the training process. If the students of the college under investigation are regarded as a united set, then their financial “surplus” at the current moment of time is “scattered” as a non-uniform amount among various educational institutions—so, there does not exist a unified mechanism of surplus calculation and expenditure.

The training of a student in one and the same profession in various colleges may involve different cost sums and, accordingly, the surplus amount that remains can be different. Moreover, there does not exist a monitoring mechanism by means of which we could evaluate how effectively the optimal sum was spent. It is not excluded that a minimal expenditure will negatively affect the quality of training or a maximal expenditure does not at all mean a better quality of training. Therefore, based only on the expenditure and surplus amounts, no conclusion can be made as to how purposefully the state resource was spent, i.e. to what an extent each college acquires a “free” surplus according to its individual rule and ensures, also according to its individual rule, a rise in the competitiveness of a graduate student at the job market.

We have to deal with yet another problematic fact that the surplus of each college and the sum of surpluses of the same college are qualitatively different sums: in individual colleges this surplus cannot produce any significant influence on the resolution of their own problems (this especially concerns a college with a minimal budget), whereas the concentration and purposeful resolution enables a college to solve important and large-scale problems.

The purpose of the statistical survey results presented in the present paper is to make a contribution to the optimization of the process of financing vocational college students by the state, namely: to contribute to the elaboration of an optimal model of surplus distribution and monitoring.

To accomplish this aim, it is necessary, on the one hand, to carry out an analysis of the needs of vocational colleges and, on the other hand, to range the existing colleges, i.e. to work out the national rating system, on the basis of which a model of concentration and maximally effective use of surpluses can be elaborated.

In the initial stage, to solve the above-mentioned problems we used the method of quantitative sociological investigation to identify those basic factors which essentially determine the attitude of students to vocational

training, which, on its part, is one of the most important components of vocational training estimation.

The general parameters of the research are as follows: a general set consisting of students of the existing state-founded vocational colleges in Georgia and the selected quantity of students equal to 1036. In selecting students, a simple random method was used. The method of questioning is a face-to-face interview. An average interviewing time is 40–50 minutes.

The investigation techniques were prepared on the basis of consultations with education and professional experts by using the approved measurement methods. Field work was carried out observing the ethics investigation standards (see [2–6]). Data analysis was carried out by the methods of descriptive statistics analysis and factor analysis (SPSS software, version 20.0).

BASIC RESULTS

The frequency indices of sex values—52% for female sex and 48% for male sex give the grounds to make a conclusion that the choice to receive education at a vocational college does not depend on sex (analogous indices of Georgia’s population are 56% for female sex and 44% for male sex. These are the data of the poll of 2014 [7]).

The distribution of students by age groups is as follows:

15-19 yrs	47.3%
20-24 yrs	26.4%
25-29 yrs	8.3%
30-34 yrs	4.2%
35-39 yrs	2.3%
40-44 yrs	2.2%
45+	9.3%

Approximately three-thirds of students are collected in 15-24 years age groups. Attention is given to the fact that the specific fraction of students aged 45 years and more noticeably exceeds an analogous index of the age group of first-year students aged 30-44, which, in view of demands of the job market, can be associated with the necessity to change the professional qualification or to receive a new qualification.

The majority of students (71%) have the base or secondary education.

Students having a higher degree of education are represented by a much lower specific fraction. It should be noted that the specific fraction of bachelors who finished the course at technical secondary schools, colleges, special

secondary schools exceeds the index. This result is quite important from the viewpoint of investigation of the mutual relationship between these two steps of education, though in order to make a concrete conclusion this question demands a deeper study.

Education	
Base	30%
Secondary	41%
secondary school, college, special secondary school,	10%
Bachelor	13%
Master	3%
Other	3%

To estimate the attitude of students to vocational colleges we chose the following three general parameters: estimation of services rendered to students and the related activities of the administration and auxiliary personnel; estimation of the teaching quality, which includes estimation of the pedagogical resource and curricula; estimation of the logistics (material-and-technical base). Each of these parameters is, in turn, subdivided into concrete indicators. As a result, measurements were done by means of 48 variables. Factor analysis or, more specifically, the method of selection of concrete components was applied. From 48 variables we chose 8 general factor variables of latent character which essentially influence the attitude of students to a vocational school.

Factor 1 includes 11 variables. This factor is conditionally called “servicing of students” since it contains all the variables which were used to estimate the services rendered directly to students and also some of those variables which are related to the administrative and auxiliary personnel who render these services.

Measurements were done by the ten-point scale, the minimal and maximal values being 1 and 10, respectively.

FACTOR NO. 1. SERVICES RENDERED TO STUDENTS

Variable description	Average	Standard deviation	Variation coefficient
Information is timely provided by college administration	9.00	1.881	20.9%
Administration is staffed with professional specialists	9.14	1.756	19.2%
Administration resolves problems in proper time	8.97	1.998	22.3%
Information on the college web-page is regularly up-graded	8.71	2.261	25.9%
College web-page performs information and communication function	8.73	2.223	25.5%
Health of college students and personnel is properly protected	8.98	1.957	21.8%
Security of college students and personnel is properly provided	9.02	1.945	21.6%
Students have access to internet	8.34	2.731	32.8%
Time-tables are timely prepared	9.09	1.872	20.6%
Registration of students takes place	9.32	1.569	16.8%
in connection with additional exams and training process	9.01	2.000	22.2%

It should be noted that an individual factor unites variables which are used to for estimating the personal mutual relations of a student with the administrative or auxiliary personnel.

FACTOR NO. 2. PERSONAL COMMUNICATION WITH THE ADMINISTRATION

Variable description	Average	Standard deviation	Variation coefficient
Students' files connected with administrative matters are organized	9.11	1.741	19.1%
Student has support on the part of administration	9.02	1.892	21.0%
Communication with administrative personnel is simple	9.09	1.747	19.2%

Thus, on the part of administration the resolution of general problems and the communication with individual students are estimated differentially, which in a vocational college even more clearly reveals the relevance

of individual contacts with every student as they depend on his concrete demands.

FACTOR NO. 3. TEACHING QUALITY

The qualification of the pedagogical resource and the quality of training programs are apprehended by students from the viewpoint of indivisible integrity—all variables connected with these two aspects of the teaching process are united into a single factor. This logically expected result once more emphasizes the fact that both aspects should continue their development in this harmony. Otherwise the effect of failure of one of them will automatically affect the other.

Variable description	Average	Standard deviation	Variation coefficient
General estimation of the general education program	9.16	1.459	15.9%
Estimation of teaching personnel professionalism	9.54	1.233	12.9%
Estimation of assessment system existing in college	9.14	1.569	17.2%
Estimation of theoretical lectures	9.41	1.261	13.4%
Estimation of work in group	9.17	1.546	16.9%
Estimation of training practical work	9.14	1.719	18.68%
Estimation of examination process	9.29	1.469	15.8%
Modern methods are actively used in delivering lectures	9.03	1.729	19.2%
Teacher is always well prepared for lecture	9.51	1.311	13.8%

Master-classes which are not directly integrated into the teaching process, buffet and various events outside the educational process (competitions, sports contests and so on) are in fact regarded on the part of students as a single factor. It is of interest to note that as compared with other variables the average estimates included in this factor have low indices. We call conditionally this factor the student medium.

From the picture presented above it is obvious that: a) as different from the teaching process, the student medium outside the teaching process is problematic and needs improvement; b) the integration of master-classes into the non-teaching medium shows that a master-class is regarded not as an improving phenomenon of professional competence, but as an unimportant addition to the education process, which indicates the necessity of a

further investigation of this issue and the obligatory integration of master-classes into the education process.

FACTOR NO. 4. STUDENT MEDIUM OUTSIDE THE EDUCATION PROCESS

Variable description	Average	Standard deviation	Variation coefficient
Education process includes master-classes	7.21	3.194	44.3%
Functioning of buffet in educational establishments	4.76	4.275	89.8%
Various events such as competitions, sports contests and so on are organized	7.27	3.363	46.2%

Resources that are connected with information receiving and communication are grouped in a separate factor.

FACTOR NO. 5. INFORMATION AND COMMUNICATION RESOURCES

Variable description	Average	Standard deviation	Variation coefficient
Education process is provided with computer facilities	8.58	2.367	27.6%
Education process is provided with library	8.47	2.437	28.8%
Education process is provided with internet	8.39	2.589	30.9%
Use of computer class is accessible	8.42	2.572	30.5%
Assessment of logistics available in library	8.18	2.447	29.9%
Quantity of computers available for students is satisfactory	8.49	2.517	29.7%
Computer software is satisfactory	8.43	2.386	28.3%
Monitors mounted in lecture-rooms function properly	7.85	3.029	38.6%
Xerox is available for students	7.22	3.381	46.8%

General infrastructure, equipment of students' practical work and the state of lecture-rooms are estimated by students differentially and regarded as independent factors.

FACTOR NO. 6. GENERAL INFRASTRUCTURE

Variable description	Average	Standard deviation	Variation coefficient
Floors are in good condition and do not hamper normal conducting of training process	9.12	1.984	21.7%
Walls, windows, doors are in good condition	9.06	2.035	22.5%
Electric power supply system functions properly	8,85	2.224	25.1%
Heating and air conditioning system functions properly	8.20	2.777	33.9%
Running water supply system functions properly	8.50	2.557	30.1%
Educational institutions are equipped in conformity with modern standards	8.30	2.561	30.9%
Training practical work is carried out in college on permanent basis	8.12	2.695	33.2%
Wet points are in good order	8.23	2.737	33.3%
Sanitary conditions are satisfactory	8.64	2.421	28.0%

FACTOR NO. 7. TRAINING PRACTICE – EQUIPMENT

Variable description	Average	Standard deviation	Variation coefficient
Lecture-rooms are provided with required hardware	8.48	2.400	28.3%
Training practice laboratories are provided with required equipment/tools	8.30	2.479	29.9%
Training practice is provided with required materials	8.36	2.405	28.7%

FACTOR NO. 8. LECTURE ROOMS

Variable description	Average	Standard deviation	Variation coefficient
Sufficient quantity of desks and chairs are available in lecture-rooms	9.41	1.589	16.9%
Desks used by students are convenient	9.00	2.043	22.7%
All lecture-rooms have blackboards	9.48	1.499	15.8%

To conclude, it can be said that students estimate the main components of the educational process with sufficient conscientiousness. Based on students' estimates, the selected factors, i.e. variables of general character by means of which students form their attitude to vocational education, characterize and the position and functioning of an educational institution and successfully perform the function of an essential parameter for establishing the rating of vocational institutions.

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