

# Challenges of the State Policy of Georgia in Respect to Vocational Education

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**Abstract:** The importance of receiving vocational education for several years for the further social and professional development of a person is recognized by the legislation of almost all countries. Also, necessity of funding vocational education by the state is universally recognized and almost no serious political party in any country of the world puts it under question. However, what should be the optimal volume of funding to achieve the desirable quality of education and the level of availability, to what extent the quality of education depends on the amount of funding, what is the optimal distribution of limited resources for achievement of the best result — there are no definite answers to these questions.

To demonstrate the challenges in the field of vocational education in a structured manner it is important to analyze the volume of funding of vocational education in Georgia, how this volume changed during the recent years and how Georgia is comparable to the countries developed in this regard; how the funding of education and the quality of education in these countries are related to each other; what sources of funding of vocational education exist in Georgia and what is the ratio of private and state expenditures; what mechanisms of funding are used for vocational education in Georgia currently; what is the amount expended by the state for vocational education spent on at the national and institutional level; how Georgia is comparable to developed countries by distribution of expenses.

The system of education is one among the institutional systems representing the foundation of the state. Vocational education system is a point of connection of education and practical activities. Research of objectives and tasks of Vocational education system institutions and improvement of various funding models have been underway in the European countries for a rather long time.

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.

Key words: vocational education, professional development, vocational students, funding

## **1. Introduction**

The importance of receiving vocational education for several years for the further social and professional development of a person is recognized by the legislation of almost all countries. Also, necessity of funding

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To demonstrate the challenges in the field of vocational education in a structured manner it is important to analyze the volume of funding of vocational education in Georgia, how this volume changed during the recent years and how Georgia is comparable to the countries developed in this regard; how the funding of education and the quality of education in these countries are related to each other; what sources of funding of vocational education exist in Georgia and what is the ratio of private and state expenditures; what mechanisms of funding are used for vocational education in Georgia currently; what is the amount expended by the state for vocational education spent on at the national and institutional level; how Georgia is comparable to developed countries by distribution of expenses.

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In accordance with Bologna Process Declaration (European Higher Education Area "Joint Declaration of the European Ministers of Education") (Bologna, June 19, 1999)<sup>1</sup>, in parallel to the process of using the human resources issued by the higher education institutions for the labor market, focus should be made to satisfy the new directions and requirements of the labor market by the alumni of higher education institutions in the unified European area.

Declaration of the European Ministers of Vocational Education and Training, and the European Commission Convened in Copenhagen, on Enhanced European Cooperation in Vocational Education and Training was adopted on 29 and 30 November 2002. The textbook Padagogishe Professionalizierung betreiblicher Bildungsarbeit (Frankfurt a/Main, 2003, p. 354) published by one of the researchers of vocational education in Frankfurt in 2003 should be mentioned in which the main objectives and tasks of vocational education for facilitation of development of the European economy are reviewed.

Similar to European countries, the Georgian government, considers vocational education as one of the priorities which provides rather high share of the labor market with specialists. The government resolution # 244 dated September 19, 2013<sup>2</sup>, identifies the procedure and conditions of financing vocational education and establishes the maximum tuition fee for state institutions providing vocational education.

Students of vocational education institutions founded/cofounded by the state receive voucher funding. Voucher funding is divided into two groups: module program funding, in this case, the full funding of the program consists of the sum of funding of separate modules and funding of vocational education program which covers the entire program.

Voucher funding shall be provided to the institution to cover expenses necessary for conducting the academic

<sup>&</sup>lt;sup>1</sup> http://eqe.gov.ge/res/docs/Boloniisdeklaracia 1999.pdf.

<sup>&</sup>lt;sup>2</sup> http://www.https//matsne.gov.ge.

process, including, payment of remuneration to vocational education teachers.

The entities founded by the Ministry: a) vocational education institutions; b) institutions implementing vocational education programs — shall be authorized to receive the program funding.

Program funding shall be issued for administrative expenses on a quarterly basis.



Resolution of the Government of Georgia # 244, 2013

Vocational education may be funded by private persons.

According to the data of 2013-2015, the total share of funding of public and vocational, general and higher education in the public expenses of education in respect to full allocations of the education system is shown on the chart. The percentage amount beyond the chart are expenses of the administration of the Ministry of Education and Science and the administration of Legal Entities under Public Law subordinated to it. The amount of allocations is shown one unit — thousand GEL.



Laws of Georgia "On the State Budget of Georgia", 2008–2014

Apart from the funds of vocational education institutions, there are other funds in favor of vocational education which are calculated in various organizational parts of the Ministry of Education and Science.

Apart from the above funds available in the state budget for the Ministry of Education and Science, there is a four year program for the vocational education and training sector supporting the sectoral policy of the EU with the total amount of 27 million EUR (Funding — budget survey, GIZ, 2011).

If we look from a more long-term perspective, we will see that the share of funding of education and accordingly, vocational education in the GDP and the unified state budget has significantly increased since 1990s. This points to the fact that funding of education has become a priority for the state. However, if we compare it to developed countries, we will see that Georgia spends much less money on funding of education than these countries. It should also be mentioned that the total amounts allocated from the state budget for education at three times less than the amounts allocated for health and social protection. The funding of the Ministry of Education and Science is also less than the funding of the Ministry of Defence and is slightly more than the funding of the Ministry of Internal Affairs.

However, when discussing increase of funding of vocational education by the state, a question should be asked — what consequences may be brought by increase of the volume of funding. More funds allocated for education do not automatically mean the better quality and more available education. Initially, it should be mentioned that it is very difficult to find objective indicators of evaluation of the education quality. The education quality may be evaluated, for example, by the level of employment at the labor market, competition at the international labor market. These indicators are one of the important indicators for evaluation of vocational education.

Ranging of vocational educational institutions and rational distribution of amounts based on it may be considered as the correct and rational approach when funding the vocational education and for that the priorities should be first identified according to which the table of rating of educational institutions will be established.

## 2. Details Experiment

#### 2.1 Research Objects and Methods

For this purpose it is necessary to study the needs of vocational educational institutions, to find out how much the infrastructure of the college, training material and qualifications of professors and teachers contribute to development of student as a specialist. To form objective impression of these facts it is clear, first of all, to take into account the views of the university students.

18 vocational educational institutions founded/co-founded by the state were selected for Quantitative Research. The students of Vocational Education Institutions were selected as interviewers.

Research methodology is determined by us in accordance with the objectives of the study — the collection and analysis of necessary information to develop flexible ratio of funding for professional education. For the research we used quantitative survey method, that gave us the opportunity to obtain, measure and analyze statistically reliable information (variables, parameters, connections, correlations).

Face-to-face interviewing was used in the research. The duration of each interview was approximately 45–50 minutes. The questionnaires were mainly constructed of closed-ended questions, but, also included open-ended questions, which are encoded separately.

### **2.2 General Parameters of Research**

General population — students of 18 vocational educational institutions founded/co-founded by the state in Georgia; Sample size-1036. Sampling method — simple random sampling. Survey method — face to face interview. The average duration of an interview 45–50 min. Students evaluated their institutions on a 10-point scale according to 52 questions. Research instruments were developed on the basis of consultations with education experts and professionals using proven methods for measurement. Field works were conducted in accordance with ethics standards of research.

Data analysis was carried out by descriptive statistics and multivariate regression analysis IBM SPSS STATISTICS (version 20) using statistical package we used additive model of multivariate regression analysis. In this model the unity of predictors are divided into more general "variable" — factors. Each factor may include several predictors, which are separated into one group in terms of indicator of mutual correlative connection and high correlation with dependent variable Y. When there are  $x_1x_2...x_n$  predictors, generally, this model has the following functional dependence.

Some predictors may be included in the several factors at the initial stage of the analysis. We left such a predictor in the factor with which it had a greater correlative connection.

The program, for the effectiveness of the model, checks the T test, the hypothesis.

$$H_0: B_1 = B_2 = \dots = B_K = 0$$
$$H_1: B_J \neq 0$$

One for  $j - j = \overline{1, k}$ .

If  $H_0$  is not denied for none of *j*, then the model is not suitable for statistical research. As all the  $x_1x_2...x_k$  variables are independent from *Y*.

Fisher statistics is used to check T test.

$$F = \frac{n - (k+1)}{k} \frac{\sum_{i=1}^{n} (Y_i - \overline{Y})^2}{\sum_{i=1}^{n} (Y_i - \overline{Y}_i)^2}$$

That has Fisher distribution under the null  $H_0$  hypothesis.  $F \Box F(k,n-(k+1))$  with degree of freedom k and n-(k+1) (N. Labrieva, M. Mania, G. A. Mosidze, A. Toronjadze, T. Toronjadze, T. Shervashidze, "Probability theory and mathematical statistics", A. Razmadze Mathematical Institute, Institution of higher education "ESM-Tbilisi" Eurasia Foundation, Tbilisi 2000, p. 664).

After passing  $H_0$  hypothesis and taking  $H_i$ , which means that the regression model is useful, computer package tests hypothesis for each  $B_i$ ,  $j = \overline{1, k}$  coefficient

$$H_0: B_j = 0$$
$$H_1: B_j \neq 0$$

Test statistics is  $T_{b_j} = \frac{b_j - B_j}{S_{b_j}}$  where  $S_{b_j}$  is calculated in computer package and is quite difficult.  $T_{b_j}$ 

statistics under null hypothesis is distributed t(n-(k+1)) by distribution of student n-(k+1) with degreeoffreedom.

Key results and innovation. The first study on assessment of students' attitude towards vocational education institutions was conducted in April-May, 2014. Three general groups of parameters are identified: evaluation of activities of student services and the related administrative and support staff, assessment of the quality of teaching — pedagogical resources and training programs and evaluation of material-technical base. Measurement was made with 52 variables (parameters). Through factor analysis, in particular, main components separation method, 8 general, latent factor/factor variable were separated from 52 parameters, that effects students' attitude towards vocational education institutions.

Factor # 1. Student Support Service

Factor # 2. Personal communication with the administration

Factor # 3. Teaching quality

Factor # 4. Student extracurricular environment

Factor # 5. Information and communication resources

Factor # 6. General infrastructure

Factor # 7. Training practice - Equipment

Factor # 8. Audience

$$FAC_{i} = (f_{i_{1}}, f_{i_{2}}, \dots, f_{i_{k_{i}}}) , \quad i = \overline{1,8}, \quad k_{1} + k_{2} + \dots + k_{8} = 50$$
$$j_{t} \neq i_{s}, \quad t = \overline{1, k_{j}}, \quad s = \overline{1, k_{i}}, \quad j_{t} \in [1, 50], \quad i_{s} = [1, 50]$$

These factors included 50 parameters. The difference of the correlation coefficient of parameter from null was not turned out to be significant they were excluded from factors.

The question was naturally raised: How stable these factors are against time? The second survey to examine this question was conducted in May 2015. 503 respondents selected by simple random sampling from students of vocational educational institutions were surveyed with the same type of questions. The questionnaire included 52 questions, as before. 9 factors were identified through multivariate regression analysis, in which 45 parameters were distributed.

Factor #1 General infrastructure

Factor # 2 Personal communication with the administration

Factor # 3-Training practice -equipment

Factor #4 Teaching quality

Factor # 5 Information and Communication Resources

Factor # 6 Theoretical Education

Factor #7 Individual working environment

Factor # 8 pedagogical staff qualification

Factor #9 Internet access

$$FAC'_{i} = (f'_{i_{1}}, f'_{i_{2}}, \dots, f'_{i_{n_{i}}}), \quad i = \overline{1,9}, \quad n_{1} + n_{2} + \dots + n_{9} = 45$$
$$j_{t} \neq i_{s}, \quad t = \overline{1, n_{j}}, \quad s = \overline{1, n_{i}}, \quad j_{t} \in [1, 45], \quad i_{s} = [1, 45].$$

It was found out that the factors are not stable against time, but 40 parameters were turned out to be resistant against time. That is why the parameters were used for the evaluation of institutions. For each parameter of the II research appropriate weight coefficient was calculated, that per  $f_{i_s}$  parameter represents the product of its relevant factor  $B_i$  weight and in this factor  $f_{i_s}$  parameter's relevant  $\alpha_{i_s}$  weight

$$W_{i_s} = (Wlight)_{i_s} = B_i \alpha_{i_s}, \ i = \overline{1,9}, \ s = 1, k_i$$

These  $W_{i_s}$  weights were regulated and we got  $W_{i_s}$ , i = 1.9,  $s = \overline{1, k_s}$  coefficients.

The coefficients of general 40 parameters resistant against the time of the I and II researches were assigned the weights calculated as a result of the second factor analysis  $W_{i_s}$ ,  $i = \overline{1.9}$ ,  $s = \overline{1, k_i}$ . As parameters were considered as new features and factors are no longer features. These parameters are renumbered including its weight in new numbering system, which includes no factor index.

$$(f^0_i;W^0_i) \quad i=\overline{1,40}$$

Thus, the dependent variable Y is expressed as follows

$$Y = \sum_{i=1}^{40} W_i^0 f_i^0$$

In §3.2 paragraph we calculated score of satisfaction with institution for every student participating in the first research

$$K_m = \sum_{i=1}^{40} W_i^0 f_{in}^0$$

Where  $f_{im}^0$  is *m*-respondent by the student  $f_i^0$ .

Parameter rating score, and  $W_i^0$  — weight of this parameter.

For i — Institution we calculated Arithmetic average  $\overline{K}_i$  (i = 1.18) of scores of satisfaction Km with

institution by respondent students of this institution, which was named the Institute score.

While ranking the institutions, the demand for this institution from labor market shall be taken into account. We have discussed the indicators of the last five admissions of students of the institution  $N_{ik}$  ( $i = \overline{1.18}, k = \overline{1.5}$ ), (Annex10). These indicators were averaged towards to each institution and normalized on the whole. We have got  $\overline{N}_i$ , i = 1.18 indicators

$$\overline{N}_{i} = \frac{\sum_{k=1}^{5} N_{ik}}{\sum_{j=1}^{18} \sum_{k=1}^{5} N_{jn}}$$
$$i = \overline{1.18}$$

That were called indicators for the demand on this institution from labor market.

Ranking coefficient of each institute  $Rang_i$  (i = 1.18) was determined, as geometric mean of relevant  $K_i$ and  $N_i$  indicators.

$$Rang_i = \sqrt{\overline{K_i}\overline{N_i}}, i = 1,18$$

These coefficients were normalized and we got the final rating coefficients  $NRang_i$  ( $i = \overline{1.18}$ ) indicators necessary for drafting the ranking system table

$$Nrang_{i} = \frac{Rang_{i}}{\sum_{j=1}^{18} Rang_{j}}, \quad i = \overline{1,18}$$

According to these coefficients the final ranking list of institutions is defined.

### **3. Results and Experimental**

This is one of the first attempts to compile the ranking table for vocational educational institutions throughout the country. In addition, the novelty is the fact that the comparison of results of the two surveys was made in terms of time in dynamics and the rating coefficient of the institution included no (unsustainable against time) factors weights, but weights of common parameters of both researches. As for the recommendations for distribution of accumulated supplements.

The adopted model of ranging may be successfully used for establishment of the table of ratings of institutions under other structures, naturally, by introduction of respective specific characteristics, as well as, as one of the mechanisms of funding of vocational education.

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