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Procedure for Integral Estimate of Young People's Human Capital (Assets) Development in a Constituent Entity of the Russian Federation

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Necessity to study capacity of the young people as main holders of the innovation potential for development of the country and single out a statistical unit of the young people as a separate group to monitor and assess efficiency of youth policy pursued by the state is substantiated. Methodological approaches to estimating human capital (potential) development of the young people are considered, procedures of integral estimate of young people's human development in a constituent entity of the Russian Federation have been developed.

Keywords: economic growth, human capital, social mobility, human development index, integral estimates of young people's human capital, state youth policy.

Introduction

Out of the four principal economic problems: allocation of resources, distribution of income, economic resilience and economic growth – the latter is still the most difficult to study.

In the 20th century economic analysis focused on investigation of economic growth determinants, yet it provides no clear-cut explanation why some states develop faster than the other, or how economic decisions determine growth rates of the countries. And, much more important, these works do not explain the role of individual decisions and influence of the institutional medium on economic growth. The neoclassical models attribute economic growth to accumulation of capital and technological changes, leaving the impact of individual decision beyond the framework of analysis to consider them as externalities. In many respects the economists remain ignorant about the most important factors of economic growth, impact of different institutions on it, government policy, customs and other factors.

Methods and Approaches

Current studies of the nature of economic growth tend to understand that economic growth implies something more than merely a fairly high accumulation rate of physical capital. Among the unspecified factors which can be assumed, is the human capital, i.e. investments in retraining and education. In this case the growth indicator is formed by the sum of indicators of population increase and technological progress which

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also accounts for the human capital growth. Human capital accumulation indicator added to the model makes convergence of growth indicators questionable, since each country implements its own programme of investments into human resources. In rich countries they can be the highest and they take the lead. Within the framework of this approach the human growth indicator is added to the aggregate production function along with the technological progress function which can increase the efficient supply of labour. In other versions the growth can have positive impact by quite different forms of capital, e.g. investments into social capital or infrastructure. Growth can also be stimulated by increasing knowledge.

Theory of endogenous growth involves paying attention and making decisions related to human capital formation, technological progress, innovations and other kinds of activities promoting economic growth. The challenge is to understand what is behind these decisions. For example is the monopoly profit an incentive to create new technologies and processes? If this is true, in the countries which do not guarantee their inventors this profit by efficient patent protection the innovation activity is to lose its intensity, and the economic growth is, accordingly, to decrease. Relationship between the innovation activities and the growth rate also depends on the influence and availability of knowledge, the benefits of which are noncompetitive and partially available. Noncompetitiveness of knowledge implies that it can be used by one person or firm without prejudice to other potential users. For example, a process or an organisational arrangement improved to produce a product can be used many times by many manufacturers (this is the investment model used by the states in South-East Asia)[1].

This availability has double effect on economic growth: 1) oversupply of knowledge can cause increasing returns to the scale and 2) at the stage of knowledge formation the supply is generally deficient. Countries following a more efficient policy to subsidise, encourage and provide incentives (e.g. providing bonuses or tax allowances for discoveries and inventions) to stimulate neogenesis can attain higher growth rates[2].

Nowadays the concept of human capital is so developed that it is difficult to imagine how much the approach that introduced this term was assailed in the 1950-60s. The concept of human capital per se was declared offensive, because it treated people as machines. To view education as investments, but not as exposure to cultural experience was thought to be heartless and narrow-minded beyond any hope[3].

After a while it has become clear that analysis of human capital helps understand many regularities in the labor market and in the economy on the whole. It helped develop a more general theory of human capital which along with individuals would comprise firms and make possible to come to macroeconomic conclusions.

Principles of market-based economy under the condition of voluntary transactions, labour market included, concerning the ability of firms and individuals to increase the human capital have brought forth a tendency to assess human capital proceeding from availability of education. Availability of education is assessed proceeding from financial capacities of a household and historical tradition of the market-based countries: professional education is a private good that later on would make possible to have high income, hence, the latter is a market incentive to get educated; owing to this incentive the households independently by their behaviour promote increase and accumulation of human capital (potential) in the economy on the whole.

This concept promoted development of social mobility theory concerning transition of children from one group to the other as a result of education and increase of income followed by changes in the social status of an individual. Social mobility theory recognises existence of different social classes and groups (strata), and not only it does not constrain them by insurmountable boundaries of innate properties, but states permanent transitions between them; thus mobility of the population forms: children may not belong to the group where the parents did, spouses can be from different groups. To substantiate we use Markovian chain theory.

Methodological Approaches to Integral Estimate of Young People's Human Capital (Potential) Development

Models of inter-generation (social) mobility are used to estimate accumulation of human capital within one country. By the late 90-s of the 20th century evaluation of human capital potential and necessity of inter-country comparisons resulted in development of a universal indicator. This indicator was human development index.

Human development index gained acceptance through publication of annual World Report on Human Development by the UN Development Program (UNDP) and national reports on human development in 120 countries, including Russia). Human development index gained favour over other integral living standard indices ("physical quality of life", "human deprivations", etc.)[4].

This procedure sets up basic provisions, principles, system of indicators and the algorithm for integral evaluation of human capital development (potential) of the young people. Qualitative development level of totality of knowledge and skills used for social production and a life-sustaining activity of young people aged from 14 to 30 was taken as an appraisal object.

Selection of this category of population as a category to evaluate the potential is determined by the practice of recent decades which convincingly proves that in the fast-paced world strategically advantageous are the countries capable of developing efficiently and using beneficially the innovation development potential whose main holders are the young people.

The current development stage of the Russian Federation is specified not only my numerous reforms in public management, but also new mechanisms developed to involve different social groups and various strata of the population into moulding a civil society. These are also the goals of the state youth policy: to create conditions for young people to successfully socialise and efficiently fulfill themselves, develop the young people's potential and use it in the interests of innovating development of the country.

The proposed methodological approaches to integrally estimate young people's human capital (potential) can be used to analyse efficiency of the youth policy of state administration bodies and develop efficient managerial decisions.

The goal to integrally estimate young people's human capital (potential) development is to form analytical and information base to develop and make efficient managerial decisions and assess the efficiency of state administration bodies of the Russian Federation and municipal entities.

The procedure of integral estimate of young people's human capital (potential) is based on the following major principles:

- integrated nature of approach to the estimate, ensuring taking into account crucial indicators of human capital (potential) development of the young people;
- adaptation to international procedure for calculation of human development index (in compliance with UN methodology);

- maximum informativeness of the results of estimate of young people's human capital (potential) development from the standpoint of decision development and making at all levels of state and municipal management;
- reliability of initial data.

Information sources for the evaluation are:

- passports of municipal entities;
- program of social-economic development of municipal entities and constituent entities of the Russian Federation;
- statistical accounting;
- field survey data.

Young people's education level indicators:

- literacy – most commonly understood as the ability to read and write in one's native language;
- the number of young people having a completed educational degree (diploma of specialised secondary educational establishment, bachelor, specialist, magister, candidate of sciences) – specifies the qualification standards of young people's human capital (potential) development.

Indicators of young people's health level:

- disease incidence among young people (per 1 000) – specifies health level of young people, development of public health services and availability of skilled medical services, environmental conditions;
- the number of smokers in entire totality – specifies not consumption of tobacco products by the young people only, but also is indicative of occurrence of vicious habits (alcoholism, drug addition, etc.) doing injury to human capital (potential). Most frequently it is due to low self-consciousness, fostering failures and weakness of state social and economic policy.

Indicators of development:

- the number of learners at the given moment from the entire totality – specifies feasibility and pursuit of the young people to develop their own human capital (potential);
- number of state-budget-funded positions at (higher and specialised secondary educational establishments) per young person – specifies feasibility of young people to develop their own human capital (potential).

Procedure for Integral Estimate of Young People's Human Capital (Potential) Development

Integral estimate specifies young people's human capital level (potential) as of report date. Integral estimate of young people's human capital (potential) development is calculated on the basis of three partial indices:

- education level;
- health;
- development.

Indicators of young people's human capital (potential) development on the basis of the following indices:

Calculation of impact indices of indicators of young people's human capital (potential) development.

1) Formula for index calculation:

- for indicators with proportional impact on resultant indicator:

$$J_F = \frac{Fact - \min}{\max - \min}, \quad (1)$$

where *Fact* is the actual value of the indicator;

max and *min* are the preset minimum and maximum values of the indicator.

Table 1. Indicators of young people's human capital (potential) development

Education level	Health	Development
Literacy, %	Disease incidence among young people (per 1 000)	Number of learners at a given moment from entire totality, %
Number of young people with completed education degree, %	Number of smokers from entire totality, %	Number of state-budget-funded positions at higher and specialised secondary educational establishments (per young person)

Table 2. Maximum and minimum defined values of education level indicators

Education level indicators	Max	min
Literacy, %	100	0
Number of young people with completed education degree, %	100	0

Table 3. Maximum and minimum defined values of health indicators

Health indicator	max	min
Disease incidence among young people (per 1 000)	1 000	0
Number of smokers from entire totality, %	100	0

Table 4. Maximum and minimum defined values of development indicators

Development indicators	max	min
Number of learners at a given moment from entire totality, %	100	0
Number of state-budget-funded positions at higher and specialised secondary educational establishments (per young person)	1	0

- for indicators with inversely proportional impact on resultant indicator:

$$J_F = \left|1 - \frac{Fact - \min}{\max - \min}\right|, \quad (2)$$

where *Fact* is the actual value of the indicator;

max and *min* are the preset minimum and maximum values of the indicator.

For each index fixed minimum and maximum values should be defined. To equal impact of indicators on the resultant indicator it is wise to provide for possible variation of impact indices from 0 to 1. In this case analogous values of indicators from a series of given attributes under study should be taken as established maximum and minimum indicators values.

Calculation of partial indices of young people's human capital (potential) development.

2) Formula for calculation of partial indices of young people's human capital level (potential) by indicators groups:

Table 5. Ranking of education level indicators

Education level indicator	Weight
Literacy, %	1/3
Number of young people with completed education degree, %	2/3

Table 6. Ranking of health indicators

Health indicator	Weight
Disease incidence among young people (per 1 000)	1/2
Number of smokers from entire totality, %	1/2

Table 7. Ranking of development indicators

Development indicator	Weight
Number of learners at a given moment from entire totality, %	1/2
Number of state-budget-funded positions at higher and specialised secondary educational establishments (per young person)	1/2

Table 8. Ranking of partial indicators

Index	Weight
Education level	1/3
Health	1/3
Development	1/3

$$j_{HCmi} = \sum d_i * J_F \,, \quad (3) \qquad j_{HCm} = \sum d_i * J_{HCmi} \,, \quad (4)$$

where j_{HCmi} is the partial index of young people's human capital (potential) development of the i^{th} indicator group;

d_i is the weight coefficient of the ith indicator.

Calculation of integral index of young people's human capital (potential) development.

3) Formula for calculation of integral index of young people's human capital (potential) development:

where J_{YCm} is the integral index of young people's human capital (potential) development;

d_i is the weight coefficient of the i^{th} partial index.

The final stage of integral estimate of young people's human capital (potential) development is to rank the constituent and municipal entities of the Russian Federation starting from the maximum value (first rank) and ending by the minimum value (last rank). If the values of

integral estimates of young people's human capital (potential) development are absolutely equal for two or several objects compared, the value of the ranks is set in compliance with arithmetic mean value of the sum of positions.

Conclusions

Analysis of produced results forms the basis to assess efficiency of measures taken by the organs of state and municipal administration to implement youth and social and economic policy on the whole, implement programs of social and economic development of regions and territories.

Results of integral estimate of young people's human capital level (potential) are presented to the heads of constituent entities of the Federation, executive authorities of constituent entities of the Federation, local government authorities and other stake holders to develop and make efficient managerial decisions on youth policy and strategic development of the Russian Federation.

Results of this study and procedure to assess young people's human capital (potential) development do not it make possible to calculate the latter due to the lack of statistical monitoring in the group of indicators selected. The situation is exacerbated by absence of earlier sociological studies in such an age group as young people.

Education level is studied the literacy of the population (to calculate human development index) and general qualification structure of the population.

Disease incidence is studied in groups of people aged 0-14 (children), 15-17 (teenagers) and the population as a whole.

Figures specifying current development process of young people's human capital (potential) and conditions for this process in statistical monitoring are considered by sectoral classification (education, science) only.

In accordance with the legislation of the Russian Federation and Krasnoyarsk krai young citizens are citizens of the Russian Federation aged from 14 to 30 (Law of Krasnoyarsk krai "On State Youth Policy" of 08.12.2006 № 20-5445, Art.1, i.1). Examination of this category of people can help work out most complete profile of young people's human capital (potential) as a basis for social and economic development of the Russian Federation within the framework of preset priorities.

The above said considered it is recommended:

- to single out citizens of Russia aged from 14 to 30 (young citizens) as a separate statistical monitoring unit;
- to develop a programme to monitor young people's human capital (potential) development and maintain statistical service of the latter.

[1] Sandler, 2006.
[2] Sandler, 2006.
[3] Becker, 2003.
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Методика формирования интегральной оценки уровня развития человеческого капитала (потенциала) молодежи субъекта Российской Федерации

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Обосновывается необходимость изучения потенциала молодежи как основного носителя инновационного потенциала развития страны и выделения в отдельную группу статистического учета молодежи в целях осуществления мониторинга и оценки эффективности государственной молодежной политики. Рассматриваются методические подходы оценки уровня развития человеческого капитала (потенциала) молодежи, разработана методика интегральной оценки уровня развития человеческого потенциала молодежи на уровне субъекта Российской Федерации.

Ключевые слова: экономический рост, человеческий капитал, социальная мобильность, индекс развития человеческого потенциала, интегральные оценки человеческого капитала молодежи, государственная молодежная политика.