

IMPACT OF THE INNOVATIVE CAPITAL ON THE SECURITY OF THE NATIONAL ECONOMY

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Abstract: In this scientific paper, we will touch the theoretical and methodological aspects of economic security as a major problem of the evolution of the national economy. The concept of economic security is of paramount importance thanks to different dimensions, major differences between the realities that characterize it, the purpose and the context in which the evaluation is made, as well as the difference of perception of the social reality. As a result of our quantifying the level of economic security and its impact on the evolution of the national economy of the Republic of Moldova, we will identify the economic and social problems of the country and the ways of minimizing them.

Keywords: *economic growth, economic security, human capital, innovational capital, innovations.*

JEL Classification: *O31, O40.*

Introduction

The economic growth and the tendency of poverty reduction are closely correlated in the Republic of Moldova with the flow of remittances and the consumption that is provided by them. Income that is given to the Moldovans living abroad has fueled the available household income, which has led to an increase in aggregate consumption demand. Because of the lack or deficit of domestic production, this demand was largely met by imports of goods and services. The national public budget has gained from this situation, but the trade balance has recorded a great trade deficit.

Economic growth based on consumption and remittances causes the country's economy to a number of vulnerabilities; moreover, there is much greater danger as a result of this pattern of economic growth, that is, one day the volume of remittances will start to decline. At present, migration divides the families of Moldovan citizens. This fact, of course, is quite serious, but taking into account the history of the evolution of migration in other countries that have faced this phenomenon, we anticipate that the Moldovan families will reunite in future. Nevertheless, it should be taken into account that without the determinate measures in creating adequate working and living conditions in the Republic of Moldova, reunification of migrant families will, probably, occur outside the country, which will trigger the decline of remittances.

From the above mentioned we can come to the two conclusions. The first, it will be difficult in future to maintain the pace of economic growth of the Republic of Moldova in the conditions of the absence of a structural change in the national economy; the second, at present, there is a need of replacing the inertial growth

model based on remittance-fueled consumption in favor of a dynamic model based on attracting investment and on the development of industries exporting goods and services.

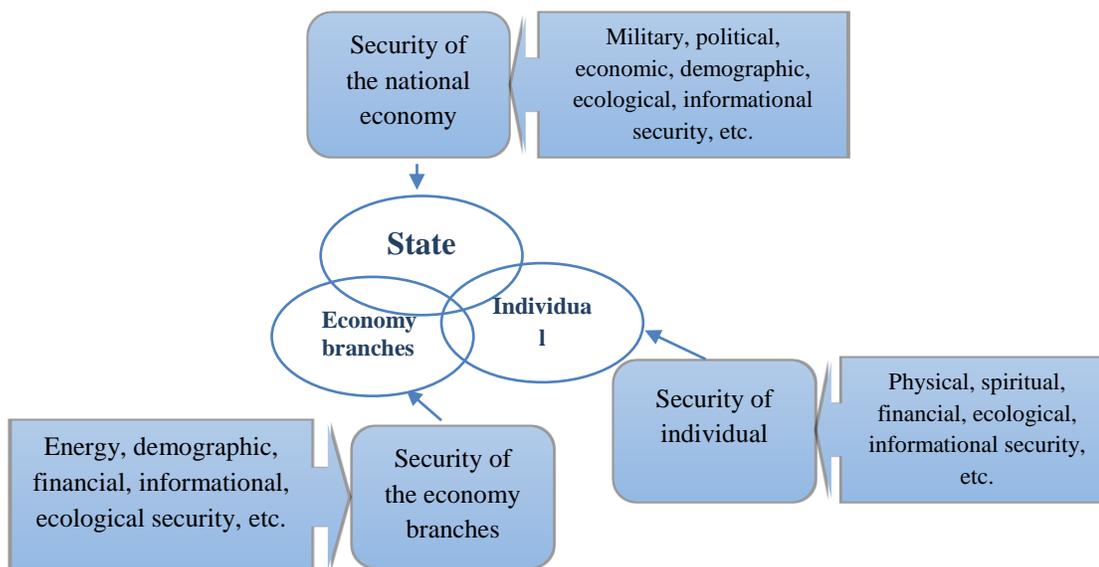
Methods and data of research

In order to reveal the problem, the specialized literature has been used; the data of the National Bureau of Statistics of the Republic of Moldova and other data referring to reflecting the real situation of the world economy have been studied. On the basis of the accumulated data, the necessary calculations have been made to determine the value, structure, dynamics, aggregate state veiling, and the main indicators of the economy's security have been determined. For the interpretation of accumulated data and made calculations, the analytical method of calculation, the table method and the graphical method have been applied. In order to interpret the obtained results, the method of analysis and synthesis has been applied. In formulating the conclusions, the authors focused on the method of induction and deduction.

Results of investigation

According to Buzan (Buzan, 1984) and Grizold (Grizold, 1994), the modern security concept can be divided into three levels: the security of the individual, the security of the branches of the economy, and the security of the national economy.

Figure 1. System of Subjects and Types of National Security



Source: Developed by the authors on the base of the source

For this reason, we note that we cannot have a uniform / holistic definition for security. To ensure the security of the individual, the branches of the economy and the state as a whole, the need of reasonable persons,

social / political groups, communities and institutions of the state to prevent, isolate and eliminate risk factors appears to be indispensable.

Next we will analyze the state level by the State Aggregate Value using the Damijan criterion. Next we will analyze the state level by the State Aggregate Value using the Damijan criterion. For an analysis of obvious structure, we use some states from the former Soviet Union, such as Latvia, Lithuania, Estonia, the Republic of Moldova and some states in the European Union. The Damijan Criterion (Cox, 1994) sets out the Aggregate State Value (VAS), which is composed of three variables:

- (1) the share of the state's surface in the global area;
- (2) the share of the population in the global population and
- (3) the share of national GDP in the world GDP (Table 1).

The result is not the sum, it is only the sum defined by the coefficients: 0.108; 0.205 and 0.976 respectively, according to the following formula:

$$VAS = \left[\left(\frac{S}{S_t} \times 100 \right) \times 0,108 \right] + \left[\left(\frac{P}{P_t} \times 100 \right) \times 0,205 \right] + \left[\left(\frac{GDP}{GDP_t} \times 100 \right) \times 0,976 \right] \quad (1)$$

where: **VAS** - State Aggregate Value; **S** - state surface; **St** - the global area; **P** - population of the state; **Pt** - the global population; **GDP** -the GDP of the state; **GDPT** - global gross domestic product.

Table 1. Classification of Countries by Aggregate State Value, 2016

State	Surface, km ²	Share, %	Population, mln. loc.	Share, %	GDP, mil. euro	Share, %	VAS
Total	148939063	100	7295889256	100	73433644	100	0,064
Lithuania	62680	0,042	2886338	0,040	38637	0,053	0,064
Latvia	62249	0,042	1944007	0,027	25021	0,034	0,043
Estonia	42388	0,028	1308818	0,018	21098	0,029	0,035
Moldova	33846	0,023	3550900	0,049	6408	0,009	0,021
Romania	229891	0,154	19651018	0,269	169578	0,231	0,297
Bulgaria	108489	0,073	7929000	0,109	47364	0,064	0,093
Ukraine	603628	0,405	42467037	0,582	218573	0,298	0,454
The Russian Federation	17101081	11,482	144463451	1,980	1159545	1,579	3,187

Source: author calculations on the base of the source <https://www.datosmacro.com/pib/>

Analyzing the process of classifying countries according to the “Aggregate Value of Countries” indicator, we can mention that the most similar states according to the Damijan criterion are the Baltic countries and the Republic of Moldova. According to some analyzes and criteria, we believe that these countries should be included in the study of the experience of sustainable economic security control in the process of economic integration.

Economic security is a component of national security, and it resides in a state of the economy, it is manifested by legality, balance and development. The state identifies vulnerabilities and causes that may undermine or / and affect its economic security; it intervenes by informing the competent authorities, depending on the case, about the situation or threat, in order to take preventive measures or countermeasures. The use of information is mainly carried out by the decision-making institutions in the country through administrative, legislative, criminal and contravention, economic, political and social measures (<http://www.sis.md/ro/asigurarea-securitatii-economice>).

The quantification of the main indicators, which characterize the broad economic spectrum, allows highlighting some factors that can reduce the vulnerability of the national economy.

In this context, we must give priority to the human capital of the Republic of Moldova, because Knowledge and skills form capital and this capital is the product of a deliberate investment. Following T.W. Schultz, as the promoter of the new human capital theory, Gary S. Becker also defines human capital as monetary and non-monetary activities that influence future monetary incomes. These activities include school education, work-based training, medical expenses, migration, and search for price and income information.

We will further analyze the Human Capital Index of the Republic of Moldova in a comparative aspect.

Table 2. Classification of States in a Comparative Aspect according to the Human Capital Index

Statul	Position	Total score HCI	Score for HCI performance for each age group				
			under the age of 15	15-24 years	25-54 years	55-64 years	65 years and older
Lithuania	18	79,3	92,6	75,7	74,2	80,9	68,3
Latvia	23	78,4	89,4	75,9	73,3	80,5	71,6
Ukraine	31	76,2	90,5	77,5	66,8	79,2	72,4
Romania	39	73,9	83	72,3	69,3	77,3	68,4
Moldova	71	66,8	81,8	68,5	56,7	73,9	58,8
Europe and Central Asia		77,1	88,9	74,4	71,1	76,9	65,8

*Sursa: The Human Capital Report 2015. World Economic Forum, 2015. *100 - the best*

In the international studies, according to the Human Capital Index (Svetlicic, Brinar, 2002), Moldova ranks last among the countries of Europe and Central Asia with the lowest score (66.8) of the achievements in developing and capitalizing of the human potential, it being well below the average for these countries (77.1). In the hierarchy of all the countries that were included in the study (124 countries) Moldova occupies position 71. In the regional aspect, the Republic of Moldova registered modest achievements according to the majority of composite indicators including the Human Capital that reflected the demographic structure of human resources and reference to two basic pillars for a country's sustainable development: a long-life education and employment. The Republic of Moldova is showing obvious losses, especially in the capitalization of the most active and productive age of the population, 15-24 years and 25-54 years old.

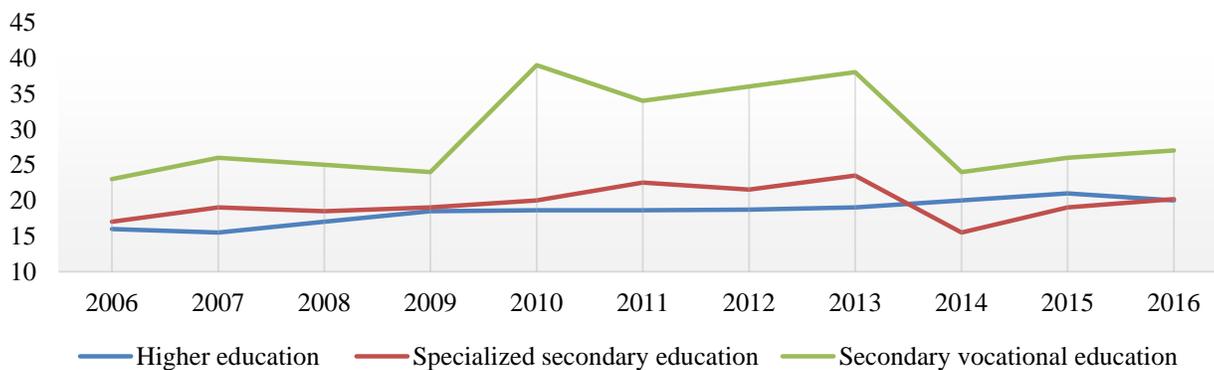
In the population of the Republic of Moldova, besides the quantitative loss, there are also significant changes in the age structure of the human resources. Thus, referring to the three large age groups correlated with the entry / exit stage in/from the labor market, according to official statistics, compared to 2000, there is a decrease of 36% in the population of 0 -15 years (from 940 thousand to 610 thousand people estimated for 2016), while the number of persons above the working age (57/62 years) increased by over 19%.

At the same time, the number of the active population (16-56/ 61 years old in the case of the Republic of Moldova) increased by about 7% during the same period, registering the highest increase in 2011-2012 as a result of numerous generations that were born in the mid-1990s entering the active age. Already after 2012, the number of active people is decreasing (by more than 25 thousand people in the last three years) and the losses are even more obvious in the long run as the country fails to capitalize this potential and take advantage from this demographic window (demographic dividend) through correct investment in human capital.

At the same time, with the increase of the number of young people without education/ specialization there is also a process of wasting the human capital already formed by employment in the occupations that do not correspond to the level of education obtained.

This is "skills mismatch in Europe", (ILO, 2014) or according to the ILO classification, is "over-educated". These terms are applied to higher and postgraduate graduates with occupations in Group 4-9 of the International Standard Classification of Occupations (ISCO) and secondary (general and vocational) graduates, with ISCO Group 9 occupations. According to this indicator, the proportion of people with lower-level occupations ("over-educated") is highest for graduates of vocational education - 25% in 2016, with higher shares for men (Figure 2).

Figure 2. Level of the Employed Population below the Level of Graduation, %



Source: It is elaborated by the author on the base of the source given in www.statistica.ru

Another component in the economic security of the state is the innovative capital. Innovation capital is the component of intellectual human capital that reflects the capacity of an organization and current investments aimed at developing the economic entity through: research and development, patents, registered trademarks, and start-up companies of increased importance.

Innovative Capital (CI) is the result of the concurrent interaction of four components:

1. the presence of a physical capital, the productive means, the necessary raw materials, the final products of these funds in the country;
2. the presence of the teams, the staff ensuring the functioning, the available use of certain technologies in the country;
3. the presence of the intellectual capital having the functional technologies as the technical-scientific potential (point 2);
4. the presence of management that ensures the operation of points 1-3, initiated in modern production and managerial technologies;
5. The innovative capital is the result of the interactions of points 1-4.

The lack of one of the four points makes it impossible to develop an innovation. In other words, by convention, the presence of assets at the four points through the variables $x_1; x_2; x_3; x_4$.

Hence, the innovative success is the product of them, that is $Y = \prod_{i=1}^4 x_i$, $Y=0$, if, at least, one $x_i=0$. The Republic of Moldova's innovative capital is further influenced by 5 factors as follows:

1. the specificity of the industrial policy of the Republic of Moldova;
2. the preferred innovations by the Republic of Moldova;
3. intellectual capital, provided by $Y = \prod_{i=1}^4 x_i$;
4. the possibilities of motivation, quantification of intellectual capital;
5. of the presence of corporate intellectual capital (Figure 3)

Figure 3. Block diagram “Structure of Moldova's innovative capital”



Source: Elaboration by authors

Next, we will examine factors that influence the innovative capital:

1. The specificity of the industrial policy of the Republic of Moldova as follows: 25-30 years ago in the Republic of Moldova there were a number of industries, including industries, that have nothing to do with the specifics of the republic (for example, they were some military industries). Without estimating the “weak” parts of those industries, with the collapse of the Soviet Union, all industries (perhaps the “good ones”) were left at the discretion of the market economy, at the discretion of chaos. During these 25-30 years, the society hoped that the market economy was the best “manager”.

As a consequence, the Republic of Moldova has remained without industries and industry managers; the society deals mainly with "trade". An industrial policy that could be based on some indicative programs of functioning of the Moldova's economy is lacking. To carry out an industrial policy, not only financial resources are sufficient; but also the four variables ($\prod_{i=1}^4 x_i \neq 0$) are required; from the part of state there is a need of a system of motivation for the innovative efforts; on the part of the society there is the necessity of the presence of human capital, techniques studies, modern technologies, the experience in industrial activities, the knowledge of the techniques and technologies that are used in the Republic of Moldova. From the part of the scientific and practical institutions there is the need of the technological tree elaboration of Moldova's industry functioning, the modern technological trees that should operate in the Republic of Moldova.

First of all, as far as the Moldova's innovation industry concerns, there must be the processing industry of agricultural raw materials that are diverse not only in technologies but also in products; modernization of the agriculture functioning and agricultural management. The import of finished agricultural products into the Republic of Moldova has created a big problem for the country. The appearance of a demand for agricultural products that were considered as domestic has deprived the local farmers of opportunities to modernize, to take more efficiency, and to expand their productive activities; the liberalization of the agricultural market of the Republic of Moldova deteriorating at its expense.

2. Preferable innovations by the Republic of Moldova

Industrial and innovation policies must be oriented towards the support, forthcoming of technologies for processing agricultural raw materials, the diversity of final products, and appearance of quality food products. Subsidizing agricultural activities must be selective. In the Republic of Moldova there is a need to support: agricultural activities requiring more manual work in order to reduce unemployment; scientific and practical activities generating knowledge, innovations in agricultural production activities; creation of productive infrastructure; commercial activities through government, public, local government procurement.

3. Intellectual Capital of the Republic of Moldova

The intellectual capital of a corporation is made up of the "sum" of staff knowledge. This (knowledge) allows the corporation to predict, prevent and overcome the difficult situations created by exogenous and endogenous factors. In principle, the knowledge of a subject cannot be quantified, it is an original way of thinking, analyzing, innovating, and intervening with a new idea.

Intellectual capital can only be manifested under certain conditions, namely, in the presence of financial capital and of means of production. Human Capital is the ability of employees to propose and implement in their activities "non-standard" solutions, the creation and dissemination of innovations.

4. Motivation of intellectual capital

Intellectual capital can only be manifested in problematic and difficult situations. Teamwork, as a rule, contributes to the synergistic effect. Intellectual capital can also be outside the corporation and at outsource intellectual services. It is difficult to estimate the "present" intellectual capital and to estimate easily the corporation's losses due to its "lack". Another "quantification" of intellectual capital could be calculated by the difference in the profits made by corporations with and without intellectual capital, that is, through the "income" lost by the entity, the loss or the intellectual capital can be quantified of the activities of the personnel. The

motivation of intellectual capital must be correlated with the losses, the potential incomes, with the intensity of the innovations.

5. Corporate Intellectual Capital (CIC). CIC is largely determined by the complexity of production means, technologies, and finished products. Technologies and CICs are in reciprocal dependence; they are mutually subject to qualitative change. "Primitive" production funds contribute to CIC devaluation and vice versa. The corporations that are renovating their productive funds are contributing to increase CICs.

Conclusion

After analyzing and determining the influence of economic security on the development of the national economy through the human capital and the intellectual capital, we can conclude that human capital is a crucial tool for ensuring the sustainable economic security of the Republic of Moldova. Intellectual capital can only be manifested under certain conditions, in the presence of financial capital and means of production. This concept can be described in more detail in a system of stable demographic development, sustainable consumption of energy and materials and the sustainable development of the commercial sector, with a continuous increase in the competitiveness of the products and services that are offered. It should also be mentioned that stability is the basis for sustainable economic security. Therefore, an economically strong state is a state with a stable development. This stability is a prerequisite for maintaining a steady economic activity and counteracting many economic risks such as: financial frauds, strategic dependence, information criminality, and underground economy, etc.

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