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THE CALCULATION METHOD OF ECONOMIC EFFICIENCY FOR THE REPRODUCTIVE PROCESS IN THE UKRAINE ECONOMY

State the problem. Development of the economy should be effective. The cost for each unit of production capacity of the country must be obtained by the increasing the gross value added. Reproduction of the gross national product of the country is a process of constant renewal of expended resources and the more and more involvement in the new turn. Therefore it is important to determine the involving of given resources in the production for growing impact. Article content corresponds to the plan of research the National Sevastopol Technical University on the issue of "on the issue of "Financial Management and risks of banks in the process of stimulating intensive economic growth in Ukraine (code “Finance-5”)." Registration № 0113U001018 “Finance-5”.

Literature Review. Despite decades of research Ukrainian researchers are still in the economic literature there is no common view on the method of calculating the economic efficiency of the country and its regions. So, A.I. Sukhorukov, Y.M. Kharazishvili [1] using the Transcarpathian region calculated integral index of economic efficiency in the region through the use of a number of indicators (the total productivity, value of shadow economy, the production technology, the potential power of scientific and technical progress, the growth rate of GRP). Furthermore, social efficiency is calculated based on: the share of wages in gross output, the shadow employment and wage in the informal economy, the level of funding for education, health funding. According to the authors the economic efficiency indicators of Transcarpathian region tend to decline over the period 2000-2012 years (gross output per unit of production capacity, the pace of scientific and technological progress and the growth rate of real GRP).

Though an interesting attempt to determine the cost-effectiveness of the region was done, should be noted that the proposed method of calculation is not correct for two reasons: first, there are a number of indicators that are not in the statistics (the shadow economy, employment in the informal economy, wages in the informal economy, scientific and technical progress, etc.); secondly, indicators can not simply be summed, because each of them has a different impact on economic performance in the region, ie, it is necessary to find the contribution of each indicator before integration.

L.O. Nikiforov, M. E. Dvornikov, A.A. Shiyan [2] concluded that the cost of goods is growing as a result of government intervention by considering the cost-effectiveness of state regulation. On the example of housing is shown that government regulation should be abolished.

Economic efficiency is defined by the authors from the standpoint of changes in value of the goods. Shiyan A.A. [3] tries to express the cost-effectiveness based on game theory through correlating demand (purchase power) and the supply. A supply is the amount of produce in these firms. This is interesting, but only indirectly reflects the economic efficiency of the country, in the region.

M.I. Krupka [4] takes for the economic efficiency of the country to measure the return on assets, i.e. the ratio to gross output value of industry assets, but it is not quite correct, because the labor, working capital and others involved in the creation of value.

Very commonly in the literature is the indicator of national income per worker in the region or at the national economic level, but this index reflects the likely productivity, and not all used resources efficiently.

Closest to our understanding of the economic efficiency of the country include the work of V.I. Dyshlovoy [6], in which GDP combined with the production potential of the country. However, it is unclear from the article how the author found the value of human capital and monetary value of land resources.

The relationship between the obtained results and the factors of production is clearly defined in the works of E. Domar [7, p.27], R. Solow [8, p.65-94] and R. Pething [9, p.99-144] in the economic literature. The relationship between the obtained results and the production factors is clearly defined in the works of E. Domar in economic literature. Classical theory explains economic growth as a combination of factors: land, labor and capital. The question of its essence, criteria and indicators for measurement remains debatable. However, the importance of solving this problem is obvious. The choice of strategy in the economic development of Ukraine, regions, enterprises, defining key priorities depends from the solving of this problem.

State the purpose. The purpose of the stud***y*** reveal the peculiarities of calculating the economic efficiency of the economy of the country and to make a comparative assessment of the functioning of Ukraine on the background of the Polish economy. Conduct testing of the method of calculation and the utilization of the production potential of the two countries.

Results. It is advisable to determine the essence and content of economic efficiency criterion. Reasonable interpretation determines the correct construction of the measuring system efficiency, the development of its general index and search the real impact for increasing of reserves. The starting point in

disclosing the essence of economic efficiency is a comprehensive account of the requirements of the market, the conditions for ensuring competitiveness.

Scientific Search criteria of economic efficiency led researchers to understanding that the ratio of gross domestic product (GDP) to valuation involved production resources can truly express the essence of country efficiency.

State, employers and employees interested in the growth of GDP, because it is part of the national budget, profit, wage fund, the level of social protection and security. We believe that it is necessary to consider the totality of the factors that determine the development of the economy if considered on the basis of points of view in assessing the economic efficiency of the country's economy.

This is the production factors in an economy-wide: X1 - fixed assets (FA); X2 - current assets (CA); X3 - human capital (HC); X4 - monetary valuation of agricultural land (MVL). Last used in the event that the value of land is not included in the value of fixed assets, such as in Ukraine.

We have adopted a gross domestic product (GDP) as a criterion of economic efficiency of Ukraine and its regions (Y).

Therefore it is possible to construct a multiple correlation equation of these indicators:

$$Y = dX1 + dX2 + dX3 + dX4 + C\,. \tag{1}$$

This model will highlight the effect of each factor on the growth of GDP over time period but does not reveal the total impact that can only be determined by the following formula

$$E = \frac{GDP}{FA + CA + HC + MVL}\,. \tag{2}$$

There is no doubt that economic theory performs useful functions, creating an essential tool for understanding reality.

The data on fixed and current assets, as well as GDP can be taken from statistical compilations in this formula It is only necessary to specify the magnitude of human capital indicators and monetary valuation of the land, as in Ukraine still has a moratorium on the purchase - sale of agricultural land.

Let us consider the method of calculation of human capital. Among the group of publications in Ukraine distinguish the following authors.

V.V. Andrianova [10] has proposed methodology for calculating the human capital as capitalized income (consumer basket). Annual costs on human capital formation at 2007 year is 2204 UAH to her calculations, and the cost of the human individual (capital) is defined by

$$HC_T = \frac{(1+0{,}05)^T - 1}{0{,}05} \times 2204, \tag{3}$$

where HC_T - the cost of the individual human capital, T - his age.

But she takes money income for 2007 year in her calculations. However, in the current period its value many times more. J.F. Zinovieva [11] determines the value of human capital using the method of calculating the cost of training. This method calculates all in 2007 prices, but the person is not formed one year, but 20-25 years, and annual costs change significantly.

V.P. Antoniuc [12] suggests to calculate the value of human capital as capitalized salaries in his doctoral thesis. In our opinion, this is not entirely true, as the salary does not reflect the full amount of income for the reproduction of human capital.

It should be noted as a comment to the proposed method: first , the salary - this is only part of the income of the population and it can not reflect all the costs of the state population and the formation and reproduction of labor power , and secondly, each year the value of human capital is different (in 2004 year – 117,7 ths. UAH, in 2006 year – - 207,4 ths. UAH).

Then the question arises: what value should be taken for the calculations?

We believe that it is necessary for the calculation of the value of taking no salary, but amount of per capita income in 15 years.

The calculations show that average annual per capita income in 15 years in Ukraine amounted to 5848 UAH. But income is not fully fund consumption, the purpose of which can be formulated as a normal condition of the family. The children grow up and grow in these families. Therefore, should be withdrawn from the accumulation of savings and income, which are (as the analysis) 12% of total income. Thus, the formation of health and knowledge capital of a prospective employee Ukraine used 5146 UAH. Should be noted the child does not consume as an adult and assumed that the age of 5 years consumed 30% of annual income, at the age of 6 14y.o. - 60% of per capita income, and from 15 to 18 years 100% of per capita income. Then the value spent on the formation of man, will be 64.5% of total income, ie 3319 UAH. It is advisable to use the formula of compound interest. To prepare the working life of 18 years in Ukraine:

$$HC_{24} = \frac{\left[(1+0{,}05)^{18} - 1\right]}{0{,}05} * 3319 = 93371 \quad (4)$$

For specialist training to form a master in Ukraine:

$$HC_{24} = \frac{\left[(1+0{,}05)^{24} - 1\right]}{0{,}05} * 3319 = 147530. \quad (5)$$

Per capita income in Poland for 15 years was 24,736 PLN. Accumulation and savings funds in Poland is 15% of total income. Consequently, consumption accounted for 21025.6 PLN. On the formation of man had 13652 PLN (64,5% based on the 21025,6 PLN).
The amount of funds for preparation of working in Poland is 273040 PLN:

$$HC_{24} = \frac{\left[(1+0{,}05)^{18} - 1\right]}{0{,}05} * 13653 = 273040 \quad (6)$$

For specialist training to form a master - 697 541 PLN:

$$HC_{24} = \frac{\left[(1+0{,}05)^{24} - 1\right]}{0{,}05} * 13652 = 697541 \quad (7)$$

We perform calculations on the use of the productive capacity of the economy of Ukraine and Poland in Table 1.

Table 1

Economic efficiency of the productive capacity of the Ukrainian and Poland economies, 2000-2011 years

Index	Ukraine (bln. UAH)				Poland (bln. PLN)			
	2000	2005	2010	2011	2000	2005	2010	2011
GDP	170,0	441,45	1082,57	1316,6	642,6	837,1	1211,3	1303,1
Fixed assets	829,0	1276,0	4649,0	6649,0	1444,8	1826,9	2520,9	2701,1
Current assets	321,6	700,7	2859,1	3387,4	379,9	519,4	874,5	978,3
Employed in the economy	20,17	20,68	20,26	20,32	12, 8	12,89	14,1	14,23
Human capital	2107,8	2248,2	2251,7	2282,5	4619,5	4755,1	5226,8	5339,1
The cost of land used	400,8	465,4	668,39	649,7	-	-	-	-
Production potential	3959,2	4690,3	10428,2	12978,6	6444,2	6592,3	8622,2	9018,5
GDP ratio to production potential, in:								
- national currency	0,043	0,094	0,104	0,101	0,099	0,127	0,140	0,144
- euro	0,009	0,015	0,010	0,009	0,0247	0,0315	0,035	0,035

Developed by the authors on the basis of [13].

The difference is determined by the magnitude of the potential thus the land resources of Poland included in fixed assets and land market in Ukraine is not working formally and therefore should evaluate his probation. Monetary land valuation method updated by the author on the basis of actual profit crop.

Table 1 shows that for the development of Ukraine's economy is characterized by an apparent increase economic efficiency (output growth of GDP in national currency), due to the inflation process, but the real efficiency gains did not happen, as can be seen in the calculation of the euro. The Polish economy has stable growth of economic efficiency of production potential. Zloty against the euro remained almost unchanged.

Nominal growth of the GDP of Ukraine in 7.7 times, which occurred in eleven years (in euro) actually was only 3.5 times (in euro). Thus devaluation of the Ukrainian currency distorts performance indicator. In Poland 's GDP grew more than twice. Growth of fixed assets in Ukraine actually occurred in 3.6 times (in euro), but not 8 times (in euro) . Production potential of Ukraine increased by 1.6 times (in euro), not 3.5 times (in euro) . Production potential in Poland increased by 1.4 times . The increasing of the efficiency of industrial potential of Poland is shown in Fig. 1.

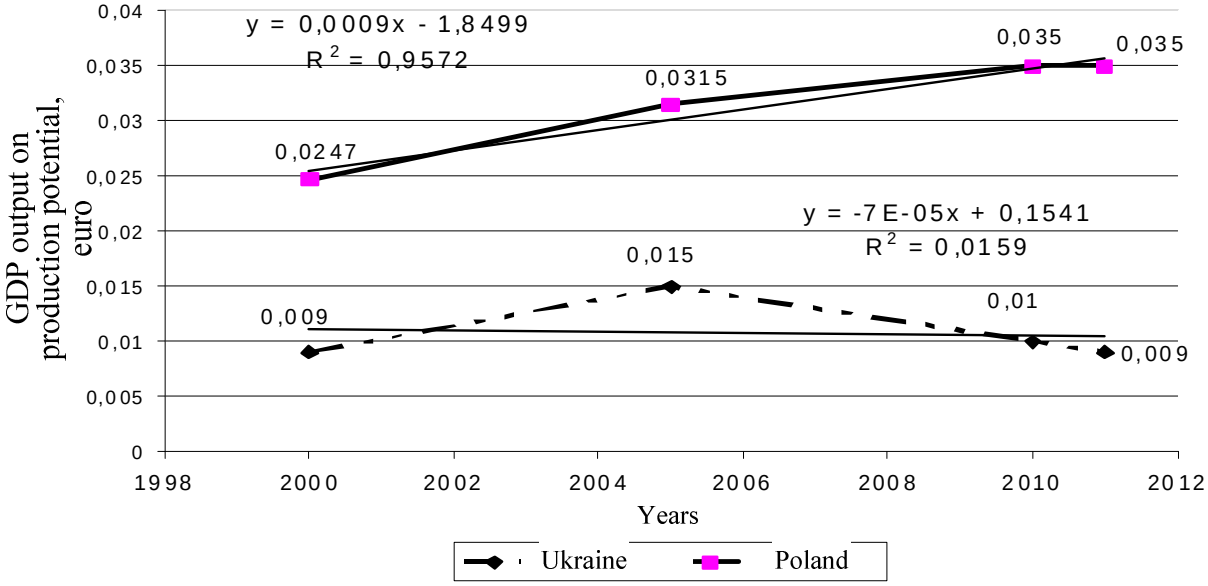

Figure 1. Economic efficiency of production potential of Ukraine and Poland, 2000 to 2011.

The Fig.1 shows increasing GDP growth units production capacity in Poland and, conversely, decreases in Ukraine. Polish worker is estimated at 3.3 times the price (above average income) than in Ukraine. The value of human capital involved in the economy in Poland outgrowth eleven years by 15.5%, while in Ukraine only 8.28%.

This is due to the numerical growth and employment in the economy and an increase in the proportion of persons with higher education. We have performed calculations that establish the influence of factors of production to Ukraine's GDP. Was obtained the following equation as a result:

$$Y = 0{,}035735X1 + 0{,}239288X2 + 1{,}173522X3 + 2419{,}13, \quad (8)$$

R = 0,99

where Y - gross domestic product of Ukraine, bln. UAH;

X1- fixed assets of Ukraine , bln. UAH;

X2 - current assets of the Ukrainian economy, bln. UAH;

X3 - the human capital of the Ukrainian economy, bln UAH.

The greatest impact on GDP growth has involvement in the production of human capital. Thus, the growth of human capital by 1 billion UAH. GDP increases by 1.174 bln., revaluation increase by 1 billion UAH will cause an increase in GDP of 35.7 million USD, and working capital - to 239.3 mln.

It was determined the effect of the factors of production to the gross domestic product of Poland. It was obtained the following equation:

$$Y = 0{,}533249X1 - 0{,}27901X2 + 0{,}218786X3 - 1032{,}52. \quad (9)$$

R =0,97

GDP growth in Poland a significant impact on GDP growth in Poland has a revaluation increase. The growth of fixed assets 1 billion PLN will cause an increase in GDP by 533 million PLN and growth of working capital - 279 million PLN. The involvement of human capital in the production of 1 billion PLN increases GDP on 218 million PLN.

The influence factors on the change in GDP in Poland and Ukraine is quite different. It follows from a comparison of factors. It should be emphasized the 20.3 million people in Ukraine produce gross domestic product for the amount of 119.4 billion euros, 14.23 million people in Poland produce - 317 billion euros, ie the performance of the Polish employees 3.78 times higher.

Conclusions. 1. Economic efficiency of the country, its regions can be expressed as the ratio of GDP to the cost of resources used (production potential).

2. It was refined method of calculating the value of human capital for Ukraine and Poland. Its value in the comparable year in Poland is 3.3 times higher.

3. It was tested method of calculating the economic efficiency of the country economy, which confirmed that performance measurement in the national currency did not accurately reflect the real state of the Ukrainian economy.

4. Production of GDP per worker, expressed in euro confirmed that in Ukraine there is a decrease in the efficiency and in Poland has seen a steady growth. It should be emphasized the 20.3 million people in Ukraine produce gross domestic product for the amount of 119.4 billion euros, 14.23 million people in Poland produce - 317 billion euros, ie the performance of the Polish employees 3.78 times higher.

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Azizov G.S. THE CALCULATION METHOD OF ECONOMIC EFFICIENCY FOR THE REPRODUCTIVE PROCESSIN THE UKRAINE ECONOMY

Purpose. To disclose peculiarities of calculating the economic efficiency of the economy country and give a comparative assessment of functioning farms Ukraine on the background of the Polish economy.

Methodology of research. In the performance assigned tasks and getting the results of the study used by economic, statistical and other methods and approaches. In particular, in determining the economic efficiency of the country's regions and applied statistical methods, methods of comparison and economic analysis. In justification of the method of calculating the value of human capital and testing method of calculation and evaluation of the use of production potential logical approach used and the method of economic analysis. In calculating the economic efficiency of industrial potential of Ukraine in different currencies used comparative method.

Findings. Approved methods of calculation and evaluate the use production potential. Specifies the method of calculating the value of human capital. It is proved that the economic efficiency of the country, its regions can be expressed by the ratio of GDP to the cost of the resources used (commercial building). Calculations of human capital have shown that the cost in Poland is 3.3 times higher than in Ukraine, and labor productivity in the domestic economy lags in 3.78 times. Monetary valuation of land resources determined by the author, based on the real income of crop. It was established that the calculation of economic efficiency of industrial potential of Ukraine in local currency did not accurately reflect the real situation. Determining the cost-effectiveness expressed in euro confirmed that Ukraine has been a decrease in economic efficiency, in Poland - a steady increase.

Originality. Used an integrated approach to the specification of calculating the efficiency of the reproduction process in Ukraine.

Practical value. Results can be used to assess the real situation and choose the direction of increasing the economic efficiency of the production potential of the country and its regions.

Key words. efficiency, growth, potential GDP, the currency, the euro.