

O. Ye. Kuzmin

Doctor of Sciences (Economics), professor,
 Director of Economics and Management Education Research Institute,
 Head of the Department of Management and International Business

O.V. Pyrog

Candidate of Economic Science, Associate Professor,
 Associate Professor of the Department of Management and
 International Business
 National University "Lviv Polytechnic"

ASSESSMENT OF THE INVESTMENT FACTOR IMPACT ON THE ECONOMIC DEVELOPMENT OF NATIONAL ECONOMY OF UKRAINE

© Kuzmin O. Ye., Pyrog O.V., 2014

Abstract. Article presents the results of the research of impact of investment factor on economic development of Ukraine and types of economic activities for the period 2000-2011 are presented; and determines types of economic activities, that are priority for investments in order to ensure the development of the national economy in framework of the post-industrial society.

Key words: economic development, national economy, the investment factor, evaluation, capital investments, efficiency, correlation and regression analysis, Ukraine.

Statement of the problem. In a post-industrial society the development of the national economy can be achieved only by stable economic development of the country and its economic activities where both domestic and foreign investments have the decisive influence on it.

According to theoretical studies and experience of developed countries, economic development is interconnected with investment activity that determines the trajectory of development. World average ratio of gross domestic savings to GDP in the last decade of 20th century stood at 23–24 %: in developed countries this figure is by 1–2 % lower, and in emerging countries this ratio is much higher and remains at 29 %. The high rate of gross savings (over 30 %) and high economic growth allowed Japan, and then another four Asian countries – South Korea, Singapore, Taiwan and Hong Kong to join developed countries. Thus, the volume and efficiency of investment are the key to economic development of country and competitiveness improvement of economic activities in modern post-industrial society. Accordingly, study of development of Ukraine's

economy and economic activities under the influence of investment become very important topic.

Analysis of recent research and publications. One of the pressing modern issues is investing of national economy that being researched and disputed both in domestic and foreign investment theory and occupies a leading position in economic studies and reflected in the scientific papers of I. Alekseev, I. Blanc, M. Krupka [1], D. Lukyanenko [2, 3], U. Makogon, A. Persada, A. Poruchnik [3], O. Rogach, J. Stiglitz, A. Filippenko, W. Fisher, W. Sharpe and others. Despite numerous research in investment, issue of assessment of impact of the investment factor on the economic development of the national economy of Ukraine in a postindustrial society remain unresolved. The importance of research on both macro- and meso-level is supported by an observation that macro level (the entire national economy of Ukraine) shows aggregated trends in the country, while the meso-level (different types of economic activity) reveals features of the regional industry, determines differences from macro-level trends across the country and detects asymmetries in the economic development of Ukraine.

The purpose of the research: to establish current trends of economic development of Ukraine and economic activities under the influence of the investment factor in the conditions of post-industrial society.

The methodical basis of the study are the methods of analysis and synthesis, statistical analysis and correlation-regression analysis. Data

used in the research is official statistical data of Ukraine and economic activities for the period 2001–2011 [4–9].

The main material of the study. During 2001–2011 investments in national economy does not exceed 25 % of GDP and characterized by uneven annual growth (Table 1).

In the 2001–2011 period capital investments (*Ic*) in economic activities increased in 7.31 times, with the highest growth in public and personal services, cultural activities and sport (in 15.31 times) and trade, repair of motor vehicles, household appliances and goods for personal use

(in 13.44 times), the lowest – in the fishery and fish farming (in 1.85 times).

During the studied period dynamics of Ukraine’s *Ic* index mostly remains positive but unstable. However, the growth rate of *Ic* by types of economic activity of Ukraine indicate that the growth dynamics is typical for the most economic sectors of the country. At the same time, the limits of the growth from year to year are constantly changing, i.e. are not constant and varies greatly. The trajectory of growth rates of capital investments by the types of economic activities of Ukraine creates wide flow that changes its direction with uneven density, due to differentiation of growth rates of industries (Table 2)

Table 1

Growth rate of capital investments by types of economic activity of Ukraine in 2001–2011, % to previous year

Type of economic activity	Period										Comparison of, 2011 to 2001 (times)
	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	
Ukraine	114.1	137.2	148.4	123.0	134.5	150.5	123.7	65.1	112.7	139.2	7.31
Agriculture, hunting and forestry	119.4	110.9	157.9	148.4	145.7	130.2	177.4	55.5	129.0	150.2	11.24
Fishery and fish farms	170.0	114.7	97.4	71.1	203.7	65.5	169.4	36.1	300.0	56.1	1.85
Industry	110.7	130.5	142.9	124.3	127.9	143.6	119.1	75.3	101.6	147.4	6.32
Mining industry	90.2	118.4	140.3	127.8	106.0	141.3	138.1	83.0	112.2	157.6	5.81
Processing industry	119.0	138.3	142.9	134.4	134.4	148.8	109.3	72.1	96.9	120.7	5.83
Production and distribution of electricity, gas and water	122.6	123.9	146.2	87.3	134.7	121.0	147.4	77.4	103.5	234.2	8.75
Construction industry	164.4	137.2	186.9	105.4	127.8	144.6	136.9	42.7	93.3	172.0	7.70
Trade, repair of motor vehicles, household appliances and goods for personal use	157.1	162.3	162.5	143.1	153.1	152.5	138.9	57.1	84.0	145.9	13.44
Hotels and restaurants	95.1	151.8	158.6	140.4	98.3	176.3	123.3	80.4	118.7	159.7	10.46
Transport and communication industry	94.0	146.1	146.8	112.5	120.4	156.0	102.7	75.4	118.4	135.4	5.28
Finance	168.1	109.7	127.4	157.8	121.5	174.6	111.3	72.5	85.1	110.2	5.95
Real estate, lease, engineering and services for entrepreneurs	122.1	139.1	145.6	136.4	156.7	164.1	123.9	52.6	144.8	113.2	9.26
Public administration	136.9	176.4	146.0	68.6	132.9	149.1	115.7	49.1	144.8	143.5	5.66
Education	142.8	112.2	146.2	91.3	133.8	141.8	140.6	63.9	126.2	132.7	6.11
Healthcare and social assistance	121.7	182.5	139.8	88.1	141.5	137.2	140.2	54.7	142.5	125.3	7.28
Public and personal services, cultural activities and sport	111.2	161.2	158.9	93.4	156.3	142.3	133.5	88.7	110.5	197.6	15.31

Note: compiled and calculated by the authors according to [4–9].

Table 2

**Characteristics of capital investment growth by types
of economic activity of Ukraine in 2001–2011**

Indicator	Period									
	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Highest growth rate, %	70.0	82.5	86.9	57.8	103.7	76.3	77.4	-11.3	200.0	134.2
Lowest growth rate, %	-9.8	9.7	-2.6	-31.4	-1.7	-34.5	2.7	-63.9	-16.0	-43.9
Width of the flow, percentage point	79.8	72.84	89.41	89.15	105.36	110.81	74.75	52.64	216.04	178.0
Average growth rate, %	27.8	38.4	46.6	14.4	37.2	43.1	33.0	-35.2	25.7	43.9
Spread between the highest and average growth rate, percentage point	42.2	44.0	40.2	43.4	66.5	33.2	44.4	23.9	174.3	90.3
Spread between the lowest and average growth rate, percentage point	37.6	28.8	49.2	45.8	38.8	77.6	30.3	28.7	41.8	87.8

Note: compiled and calculated by the authors according to [4 – 9]

There is a noticeable fluctuation of the width of the flow of the growth rate of economic activity of Ukraine: from 52.64 percentage points in 2009 to 216.04 percentage points in 2010. If we compare the width of the flow in 2011 with 2001, we can argue that in this period the flow expanded in width in 2.2 times, which may be an indicator of sectoral imbalances of investment in national economy of Ukraine. The average growth rate of gross regional product for 2001–2011 is also not uniform and varies each year, such as from 14.4 % in 2005 to 43.9 % in 2011 and (-35.2) % in 2009.

During the studied period the efficiency of the investments in economic activities of Ukraine achieved through constant growing quantity of industries that have increasing growth rate of capital investment. Even in 2003 and 2008 the growth of capital investment was observed for all economic activities in Ukraine. The negative impact of the global financial crisis and domestic economic crisis fully manifested in 2009 when all economic activities of the country had declining rates of capital investment. However, in 2010 almost all economic activities of Ukraine, except processing industry, construction, trade, repair of motor vehicles, household goods and personal items and financial activities resumed growth in investment, while in 2011 – only fishing and fish farming had growth.

The obvious leader in economic activities in terms of growth of capital investments is trade, repair

of motor vehicles, household goods and personal use. Also, the four top places in terms of growth during 2001–2011 often are occupied by finance, real estate, lease and business activities and public and personal service activities in the field of culture and sport. The list of economic activities with the lowest growth or decline in capital investment includes mining, transport and communication, public administration and construction.

We created variation-dynamic table that allows to determine the pace of capital investment, which were typical for the most of types of economic activities in Ukraine during the studied period. It was found that the majority of economic activities was characterized by growth rates that are more than 120.0 % for the entire the studied period. In other ranges the economic activities were distributed evenly, but these growth rates are typical for a minority of cases.

Grouping of economic activities of Ukraine according to the share of capital investment into the three groups allowed us to receive the following results:

– the First Group always consists of three types of economic activity – processing industry, transport and communication, real estate, lease and business activities with a capital investment share of 56.4 – 58.7 %, while in 2001 – 2002, 2008 and 2011 this group had one more type of economic activity – mining industry and accordingly the share of the group was 61.8 – 71.6 %;

– the Second Group includes nine types of economic activity of Ukraine with a capital investments share of 27.5 % in 2001 and 42.1 % in 2011, which increased by 14.6 percentage points during period;

– the Third Group consists of three economic activities of Ukraine: fishery and fish farming, public administration and education with a capital investment share of 1.58 – 1.82 %.

Detailed analysis of sectoral structure of capital investment for the period 2001–2011 reveals significant changes: by reducing investment in industry by 5.67 percentage points and by 6.35 percentage points in transport and communication there was increase of investment in such economic activities as real estate, lease, engineering and services for entrepreneurs by 3.73 percentage points, trade by 3.3 percentage points and agriculture by 2.67 percentage points. V. Dergacheva [11, p. 24] argues, that the consequences of this vector of economic development will be loss of quality of labor force (due to the loss of industrial intelligence) and critical depletion of fixed assets. Also these factors block the prospects for the competitiveness of the national economy in free market mode of economic and monetary relations.

Sectoral asymmetry of investments in national economy of Ukraine has following distribution: two-thirds of investments (61.8 %) are concentrated in three types of economic activity

(processing industry, transport and communication, and real estate, lease and services for entrepreneurs), while the remaining twelve economic activities of the country attracting only one-third of capital investment. The macro- and meso-level features of investment in the national economy of Ukraine are shown in the table 3.

Impact of investment on economic development of the national economy of Ukraine and economic activities was established by using correlation-regression analysis. Formulated univariate regression models have average relative error (ε) with the following values:

– less than 10%, indicating a high level of accuracy and model predictions for such economic activities as agriculture, hunting and forestry ($X1$), industry ($X3$) (including mining ($X31$), production and distribution electricity, gas and water ($X33$)), transport and communication ($X7$), public administration ($X10$), education ($X11$), health care and social assistance ($X12$);

– within 10–20 % , indicating an average (normally acceptable) accuracy models and forecasts for the following economic activities: fishery and fish farming ($X2$), processing industry ($X32$), construction ($X4$), trade, repair of motor vehicles, household appliances and goods of personal use ($X5$), real estate, lease and services for entrepreneurs ($X9$), public and personal services, cultural activities and sports ($X13$);

Table 3

Features of the investment of the national economy of Ukraine in 2001 – 2011

Macro-level features	Meso-level features
– capital investments in Ukraine increased in 6.42 times, while the maximum growth (in 13.46 times) took place in Autonomous Republic of Crimea and the minimal growth (in 2.86 times) – in Sumy region;	– capital investments by the types of economic activity of Ukraine increased in 7.31 times, where maximum growth of Ic was noticed in public and personal service activities, cultural activities and sport (in 15.31 times) and trade, repair of motor vehicles, household appliances and goods of personal use (in 13.44 times), and the minimal growth – in fishery and fish farming (in 1.85 times);
– range of variation in the growth rate of capital investment was significant: from 48.6 % in 2009 (Lugansk region) to 249.0 % in 2004 (Cherkasy region). Even at the end of the studied period growth of the capital investments by regions of Ukraine cannot be characterized as steady and homogenous.	– range of variation of the growth rate of capital investments was significant by the types of economic activity from 36.1 % in 2009 (fishery and fish farming) to 234.2 % in 2011 (production and distribution of electricity, gas and water). Even at the end of the studied period growth of capital investments by the types of economic activity cannot be characterized as steady and homogenous.
Common investment trends	
– growth rates of capital investment over 120% are typical for the most regions and economic activities of Ukraine;	
– high growth of capital investments do not provide a significant accumulation of investments in regions and in types of economic activities of the country.	

Note: compiled by the authors according to the results of own studies.

– More than 20 %, indicating a satisfactory level of accuracy models and forecasts – hotels and restaurants (X6), finance (X8).

Therefore crucial for the development of the national economy are traditional economic activities for Ukraine that belong to low- tech and primary industries:

1) industry – 1 % of growth stimulates growth of gross value added at 1.0956 % with the highest correlation coefficient of 0.9335, due to mining (1% stimulates the 1.0780 % of GVA growth with a coefficient of correlation of 0.8421), processing industry (1 % stimulates 0.6557 % of GVA growth with a coefficient of correlation of 0.9585) and the production and distribution of electricity, gas and water (1 % stimulates 1.3669 % of GVA growth with a coefficient of correlation of 0.6699);

2) transport and communication – 1 % stimulates 1.1416 % of GVA growth with a coefficient of correlation of 0.7888.

The types of economic activities that have a close interconnection between the economic sector development and development of national economy (correlation coefficients within 0.75 – 0.89), but have no significant effect on the growth of the national economy are construction (1 % stimulates 0.3162 % of GVA growth), trade, repair of motor vehicles, household appliances and goods for personal use (1% stimulates 0.3753 % of GVA growth) and financial activities (1 % stimulates 0.3252 % of GVA growth).

Education and health care are economic activities, which have the potential to have decisive influence on the economic development of the national economy due to the fact that 1 % increase in education can stimulate 0.6622 % of GVA growth of the national economy, but the relationship between the education and the national economy is below average (correlation coefficient – 0.3122), 1 % increase in health care can encourage 0.2610 % of the growth of GVA of the national economy, but the relationship between the health care and the national economy is also below average (correlation coefficient – 0.1180).

According to the results of the evaluation, only fishery and fish farming has average negative correlation with the development of the national economy, which means with decline of economic activity in fishery and fish farming by 1 % stimulates 0.4022 % of growth of the national economy.

Economic activities that have a strong correlation between investment activity and sector development (correlation coefficients within 0.57 – 0.74), but investments do not have significant effect (indirect impact) on sector growth are industry (1 % of investment stimulates 0.1061 % of growth of GVA of sector), namely processing industry (1 % of investment stimulates 0.3262 % of growth of GVA of sector), construction (1 % of investment stimulates 0.4088 % of growth of GVA of sector) and transport and communication (1 % of investment stimulates 0.2109 % of growth of GVA of sector). For all other types of economic activity investment activity is not the defining factor and does not impact on their development.

Conclusions. During the study of the impact of the investment factor on the development of the national economy of Ukraine and economic activities were obtained the following results:

– investment activity is not crucial for the economic development of the national economy and the economic activities of Ukraine, due to lack of stable investment trends and chaotic capital investments into economic activity of Ukraine, in the same time investments in the national economy of Ukraine and economic activities unevenly grow annually with rate of more than 120.0 % ;

– high investment growth rates do not provide a significant accumulation of investment in economic activities of Ukraine;

– industry (mainly processing industry), construction, transport and communication are types of economic activities, that are priority for the economic development of the national economy and development of which indirectly influenced by investment activity;

– under the terms of the post-industrial society in economic activities of Ukraine education and health have potential opportunity to become the basic economic activities for the stable development of the national economy.

References

1. Krupka M.I. *Finansovo-kredytnyy mekhanizm innovatsynoho rozvytku ekonomiky Ukrainy*. – Lviv: Vydavnychyy tsentr Lvivskoho nats-ho univer-tu im. I. Franka, 2001. – 608 s.
2. Lukyaneno D.H. *Globalna ekonomichna in the-ratsiya: Monohrafiya / D.H. Lukyanenko*. – K.: TOV “Natsionalnyy pidruchnyk”, 2008. – 220 s.

3. *Upravlinnya mizhnarodnoyu konkurentospro-mozhnistyu v umovakh globalizatsii ekonomich-noho rozvytku: Monohrafiya / za zah. red. D.H. Lukyanenka, A.M. Poruchnyka. – K.: KNEU, 2006. – 816 s.*
4. *Statistical Yearbook of Ukraine for 2001 / State Statistics Committee of Ukraine; ed. V.A. Golovko. – K.: Technika, 2002. – 509 p.*
5. *Statistical Yearbook of Ukraine for 2003 / State Statistics Committee of Ukraine; ed. O.H. Osaulenko. – K.: Publisher “Consultant”, 2004. – 508 p.*
6. *Statistical Yearbook of Ukraine for 2004 / State Statistics Committee of Ukraine; ed. O.H. Osaulenko. – K.: Publisher “Consultant”, 2005. – 510 p.*
7. *Statistical Yearbook of Ukraine for 2005 / State Statistics Committee of Ukraine; ed. O.H. Osaulenko. – K.: Publisher “Consultant”, 2006. – 570 p.*
8. *Statistical Yearbook of Ukraine for 2008 / ed. O.H. Osaulenko. – K.: Publisher “Consultant”, 2009. – 567 p.*
9. *Statistical Yearbook of Ukraine for 2010 / ed. O.H. Osaulenko. – K.: LLC “August Trade”, 2011. – 560 p.*
10. *Statistical Yearbook of Ukraine for 2011 / State Statistics Committee of Ukraine; ed. O.H. Osaulenko. – K.: LLC “August Trade”, 2012. – 559 p.*
11. *Derhachova V. Monitorynh natsionalnoho rozvytku yak faktor ekonomichnoi bezpeky derzhavy / V. Derhachova, M. Savelyev // Ekonomika Ukrainy. – 2010. – № 1. – S. 19–28.*