

ЕКОНОМІЧНА ТЕОРІЯ

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THE IMPACT OF THE INDUSTRIAL POLICY ON REGIONAL DEVELOPMENT IN UKRAINE

The paper deals with the study of the role of industrial policy on regional development, and aims to formulate the basic measures for future structural adjustments in Ukraine. Theoretical analysis of various approaches confirms market imperfection and proves the necessity of further empirical research in the field of assessment of the effectiveness of industrial policy. The use of a complex approach, bounded rationality and socio-economic dynamics provides a transdisciplinary view on a broad range of industrial policy considerations.

The progress in reforming process in the regions depends on the success of industrial policy providing different measures of support (including protection and production subsidies) across industries to see whether supported industries exhibit faster growth. Studies on economic growth and trade policies confirm the existence of a strong correlation between growth rate of trade and regions' economic performance.

The analysis of two groups of factors – general and specific sources of the growth of transition economy – is directed on estimation of the effects of regional industrial policy in Ukraine. The first group of indices includes industrial output, fixed capital accumulation, human capital accumulation, economically active population, growth of R&D expenditures, macroeconomic stability, monetary indices, foreign trade, and foreign direct investments. The aggregate transition specific factors combine the indicators of success of reforms, including labour productivity, capital intensity, technological change, regional differences. The regional imbalance assessment is determined by the gross regional product per capita, regional employment, and expenditures on education.

Keywords: industrial policy, complex approach, regional development.

JEL Classification: O10, O11, O18, O25.

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ВПЛИВ ПРОМИСЛОВОЇ ПОЛІТИКИ НА РЕГІОНАЛЬНИЙ РОЗВИТОК В УКРАЇНІ

Процес реформування в регіонах залежить від успіху промислової політики, яка включає використання різних заходів, зокрема підтримки національних виробників (субсидій, застосування політики протекціонізму в різних галузях). Дослідження в області економічного зростання свідчать про існування кореляції між темпами зростання торгівлі і показниками економічної кон'юнктури в регіонах. Використання комплексного підходу до регіональної промислової політики спрямовано на визначення наслідків економічного розвитку регіонів, що передбачає визначення пріоритетних галузей, які вимагають підтримки з боку держави. Застосування досвіду промислової політики ЄС в Україні має сприяти швидкому зростанню капіталу, робочої сили, технологій на регіональному рівні.

Аналіз двох груп факторів: загальних і специфічних джерел економічного зростання трансформаційної економіки – спрямовано на оцінку впливу регіональної промислової політики в Україні. Перша група показників включає обсяг промислового виробництва, накопичення основного капіталу, накопичення людського капіталу, економічно активне населення, зростання витрат на НДДКР, макроекономічну стабільність, грошові показники, зовнішню торгівлю та прями іноземні інвестиції. Перехідні специфічні фактори в сукупності об'єднують показники успішності проведення реформ, в тому числі продуктивність праці, капіталомісткість, технологічні зміни, регіональні відмінності. Оцінка регіонального дисбалансу визначається показниками валового регіонального продукту на душу населення, регіональної зайнятості та витрат на освіту.

Ключові слова: промислова політика, комплексний підхід, регіональний розвиток.

JEL Classification: O10, O11, O18, O25.

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ВЛИЯНИЕ ПРОМЫШЛЕННОЙ ПОЛИТИКИ НА РЕГИОНАЛЬНОЕ РАЗВИТИЕ В УКРАИНЕ

Процесс реформирования в регионах зависит от успеха промышленной политики, которая включает использование различных мероприятий, в том числе поддержки национальных производителей (субсидий, применения политики протекционизма в различных отраслях). Исследования в области экономического роста свидетельствуют о существовании корреляции между темпами роста торговли и показателями экономической конъюнктуры в регионах. Использование комплексного подхода к региональной промышленной политике направлено на определение последствий экономического развития регионов, предусматривающего определение приоритетных отраслей, которые требуют поддержки со стороны государства. Применение опыта промышленной политики ЕС в Украине должно способствовать быстрому росту капитала, рабочей силы, технологий на региональном уровне.

Анализ двух групп факторов: общих и специфических источников экономического роста трансформационной экономики – направлен на оценку влияния региональной промышленной политики в Украине. Первая группа показателей включает объем промышленного производства, накопления основного капитала, накопление человеческого капитала, экономически активное население, рост расходов на НИОКР, макроэкономическую стабильность, денежные показатели, внешнюю торговлю и прямые иностранные инвестиции. Переходные специфические факторы в совокупности объединяют показатели успешности проведения реформ, в том числе производительность труда, капиталоемкость, технологические изменения, региональные различия. Оценка регионального дисбаланса определяется показателями валового регионального продукта на душу населения, региональной занятости и расходов на образование.

Ключевые слова: промышленная политика, комплексный подход, региональное развитие.

JEL Classification: O10, O11, O18, O25.

Introduction

The paper deals with the study of the role of industrial policy on regional development, and is aimed to formulate the basic measures for future structural adjustments in Ukraine. The global industrialisation upswing, international division of labour, capital expansion and foreign trade stimulate involvement of the developing countries into the system of global economic relations. The analysis of different publications shows that industrial policy has been successful when those with political power who have implemented it have either themselves directly wished for industrialization to succeed, or were forced to act in this way by the incentives generated by political institutions (Robinson, 2009).

One could mention the existence of variety concepts for industrial policy. Scientists point out economic results of the positive theory of industrialisation, which had been applied in the Soviet Union. The negative consequences of its implication were uneven and unfair distribution of common goods among the former republics. Some studies find out that on particular industries that have received protection, it may lead to higher growth but result in net welfare losses (Madsen, Jensen, Hansen, 2003). Measures that provide export promotion are likely to be more successful than other types of interventions (such as tariffs or domestic content requirements) (Clemens, Williamson, 2001). Theoretical analysis of various approaches confirms the existence of market imperfection and proves the necessity of further empirical research aimed at assessment of the effectiveness of industrial policy. The use of economic complexity, bounded rationality and socio-economic dynamics provides a transdisciplinary approach to deal with a broad range of industrial policy considerations.

The progress in reforming process within the regions depends on the success of industrial policy providing different measures of support (including protection and production subsidies) among industries to see whether supported industries exhibit faster growth. Studies on trade policies and growth show strong correlation between increasing trade shares and country performance. The complex approach to regional industrial policy is directed at the analysis of the regional development effects. One could suggest the EU industrial policy should speed the process of capital, labour, technology accumulation and knowledge diffusion from regional to national, global levels.

Literature review

The intensive development of industry and the industrial policy is one of the main tendencies of modern world economy trends. Industrial policy is an integral and coordinated management system of state authorities, focused on the development of industry in general and of its separate (priority) branches; it is maintained by the corresponding mechanisms of implementation, including stimulation, regulation and monitoring through the appropriate institutions – state and market ones. The purpose of this mechanism is to solve strategic and tactic tasks of development of the real sector: increase in volume and changes in structure of industrial production, creation of new working places, competitive growth of national economy and its separate branches etc.

The positive economic result of the industrialisation theory, applied in the Soviet Union, and of the application of the Soviet model of production, was 50 % of industrial production share in GDP. Saha (Saha, 2015) points at the existence of elements of structural change, which are visible in the evolution of Ukraine's industry. The author indicates that there is no correlation between relative size and growth of a subsector, but rather, growth was differentiated by the type of industry. Some studies find out that in case of particular industries that have received protection, this may lead to higher growth but result in net welfare losses (Madsen, Jensen, Hansen, 2003). The effects of both movement of labour from low- to high-productivity sectors and productivity improvements within sectors are analyzed as a source of economic growth, and its strong convergence property effect in manufacturing. Growth, based on industrialization, is defined as a relatively easy kind of growth, which can be accomplished without placing too great demands on the fundamental capabilities of the economy (Rodrik, 2013). Measures that provide export promotion are likely to be more successful than other types of interventions (such as tariffs or domestic content requirements) (Clemens, Williamson, 2001).

Tridico (Tridico, 2011) understands by institutional, structural and systemic change getting the right institutions to adapt those, which do not fit well, keeping the old institutions which could still work and overcoming the inefficient ones. Felipe (Felipe, 2015) identifies and analyses new forms of modern industrial policy, which work effectively and are able to overcome the problems of the past. New conceptual developments are proposed, showing how modern industrial policy is able to initiate, upgrade, and transform economic activity for the benefit of all. The evidence is used to provide a new theory of industrial policy, distinguishing modern industrial policy from the practices of the past. The author stresses that developing countries need a "modern industrial policy", which refers to the set of actions and strategies used to favour more dynamic sectors of the economy (Felipe, 2015). A key aspect of modern industrial policy is embedding private initiative in a framework of public action to encourage diversification, upgrading, and technological dynamism to achieve development in the twenty-first century.

Theoretical analysis of various approaches confirms the existence of market imperfection and proves the necessity of further empirical research aimed at assessment of the effectiveness of industrial policy. The use of economic complexity, bounded rationality and socio-economic dynamics provides a transdisciplinary approach.

In market economy the private sector and private sector enterprises are the long-term driving force of industrial development. It is this vibrant private sector that triggers economic dynamism, enhances productivity, carries out the transfer and diffusion of new industrial technologies, and maintains competitiveness. In so doing it also shapes the economic globalization process. At the same time, it must be underscored that the ultimate objective of this process is poverty reduction.

The difference between working and not working industrial policy lies in the objectives and functioning of the institutions implementing the policies and these are determined by the political system (Robinson, 2009).

Peculiarities of industrial development in Ukraine

The basic idea of the state industrial policy is ensuring economic power, independence and security of the country through the development of high-technological and competitive industries. The purpose of the state industrial policy is slump production suspension to ensure modernization, restructuring and sustainable development of Ukrainian industry in transition to industrial economy as the basis of economic independence of the state, the welfare of the people, and the country's integration into the global space. The relative importance of the industrial sector in Ukraine has continuously decreased since the fall of the Soviet Union. Its share of industry in Ukraine's economy has dropped from around 50% of gross value added (GVA) in 1991 to 27%, including energy and

water supply. In 2004 among CIS the situation was severe, and all the former Soviet republics (FSRs) were still below their 1989 GDP level (Tridico, 2009). Ukraine has not succeeded in carrying out sufficient reforms, had hyperinflation, unstable economy and high corruption. UNIDO experts note explanations for the declining trend in the manufacturing sector in NIS countries (UNIDO, 2003). Firstly, the privatization of the state-owned enterprises (SOEs) in the region was a measure to improve the government's fiscal position by reducing subsidies to SOEs, simultaneously increasing government revenue by the sale. Instead, many of SOEs were engaged in asset stripping, selling off company properties piece by piece at discounted prices to make a quick return, which led to the decline of competitiveness. Secondly, the inefficient use of resources, including labour, was rather high in the previously state-owned enterprises, it was impossible to avoid generating significant unemployment as a result of the restructuring process. Sectoral studies showed that "there is no evidence of a substantial diminution of the technological gap between the Soviet Union and the West in the past fifteen to twenty years, either at the prototype /commercial application stages or in the diffusion of advanced technology" (Amann, Cooper, Davies, 1982). Transition countries have not reached a leading position in the world in a particular branch of economic activity on the basis of innovation. They relied on imported technology, which does not provide integration into global economy (Myant, Drahokoupil, 2011). New sources of growth have not yet been able to compensate stagnant or diminishing performance of old industrial substance. Identifying and strengthening these new sources of growth will be a key to secure Ukraine's status as an industry-based economy (Saha, Kravchuk, 2015).

The structure of the Ukrainian economy is under the influence of the global challenges of the world economy. Global growth, currently estimated at 3.1 percent in 2015, is projected at 3.4 percent in 2016 and 3.6 percent in 2017. The World Bank is revising its 2016 global growth forecast down to 2.4 percent from the 2.9 percent pace projected in January. The move is due to sluggish growth in advanced economies, stubbornly low commodity prices, weak global trade, and diminishing capital flows (The World Bank, 2016). The basic structure of the global economy shifts is defined by the following tendencies: accelerated pace of development of new advanced high-tech and high-tech industries, compared with the traditional; growth rates groups A and B of industry; reducing the share of environmentally hazardous mining and manufacturing industries in total industrial production; increase the share of social-service industry, which "absorbs" in developed countries up to 70% of wage earners and self-employed economically active population. At the same time the world's attention to industrial policy is growing. The governments of many developed countries and those of developing countries consider industrial policy as a means of promoting sustainable economic growth and improving the welfare of citizens.

In Ukraine as a result of the global financial crisis, political instability and weaknesses of the control system, the level of investment activity does not allow to accumulate sufficient investment resources for modernization of the economy. In 2010–2013 a deep crisis led to slowdown in capital investments and reduction of new production capacity, growth of volumes of incomplete construction, low technological parameters and reproductive structures of capital investments. In recent years some stabilization in the dynamics of gross capital investment in the industry was largely due to the low base of comparison with the level of investment in the post-crisis years. The World Bank data of gross capital formation in Ukraine show decline from 18 % to 14 % of GDP in 2013 to 2014, and some increase to 15 % in 2015. (World Bank, 2015). At the same time the world's attention to industrial policy is growing.

Industrial companies are forced to respond to the growing challenges and threats before their activity is reduced: demand for domestic and foreign markets, deterioration in access to many traditional industries in the Russian market, the appreciation of domestic financial resources, and an urgent need to update of fixed assets.

Industry of Ukraine occupies a prominent place in the global economy. In terms of iron and steel production Ukraine occupies the eighth place in the world, and in traded products – the third one.

During 25 years of independence Ukraine didn't develop a clear and systematic approach to its industrial policy, and its place in the economic policy of the country in general. Various governmental initiatives to support industry consisted mainly of decisions (often political) of tax relief for certain industries and direct financial support of "sensitive" industries by reason of their social aspect. This support did not stimulate the restructuring and development of distressed industries, but on the

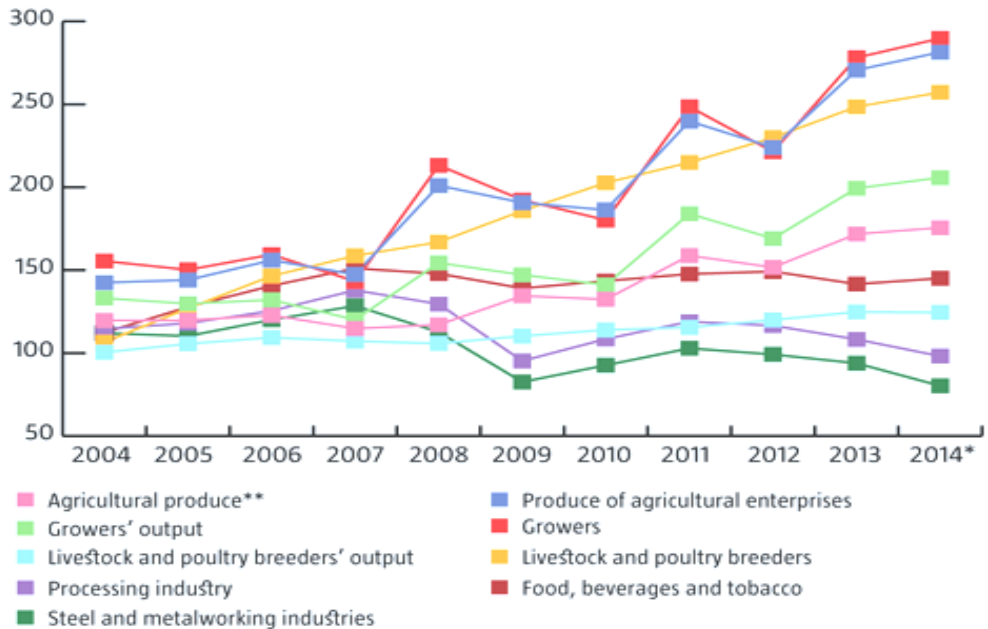
contrary, preserved their problems.

The main characteristic features of the industrial development of Ukraine are:

- significantly weakened position of investment-oriented activities;
- deepening technological gap between Ukraine and developed countries;
- the share of the most energy intensive and environmentally harmful fuel and energy and metallurgical complexes;
- a rapid reduction in the share of light industry – an industry that, along with the food industry is directly focused on meeting consumer needs.

The consequences of slowdown industrial development are explained via further deepening technological backwardness its material and technological base. Resolving of economic problems is impossible without active state structural policies.

The whole industrial complex of the country acts as an object of industrial policy. Wide acknowledgment of industry's important role in the current pressing issues reflects on new tasks of accelerated development of the industry, which is a generator of scientific and technical progress and innovations, as well as an important factor of global competitiveness of national economies and a driver of economic growth. Ukraine also needs to use the indicated advantages of industry more actively, taking into account current situation in Ukraine and beyond its boundaries. Assessing the structure of the economy of Ukraine in 2014, one can conclude that in Ukraine the total proportion of manufacturing industry as a whole meets the core index balanced structure (20%) (Fig. 1).



*Without account of the temporarily occupied parts of Crimea, Sevastopol and Donbas
 **Including family farmsteads

Fig. 1 – Total output of agricultural, food, metallurgy and processing industries (change in % from 2003)

Source: Data of the State Statistics Bureau.

However, be aware that intra-structure manufacturing industry Ukraine has a "bias" towards heavy industry – steel and energy sector. During the period from 1990 to 2013 proportion of engineering, which is the basis of high and medium technological industries in the structure of industrial production dropped almost three times: from 31% to 10.6%, while the industry that is weak low and medium resource sector industry increased 1.5 times: from 11% to 17.5%.

The structure of the national economy of Ukraine did not meet the technological stability criterion. The share of high-technological industries is about 5% (4 times less), the total share of high-tech and medium high-tech industries – about 25% (2 times less) (Fig. 2).

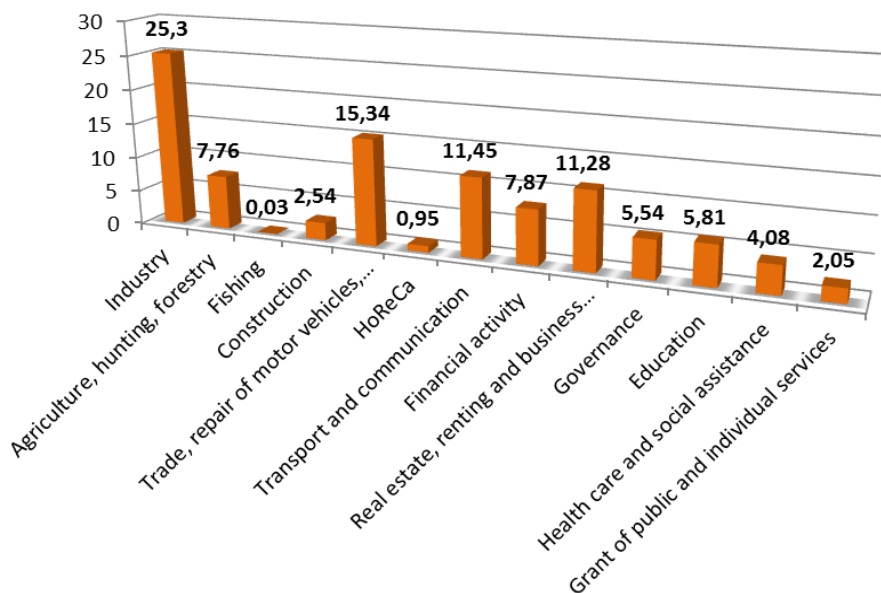


Fig. 2 – Sectoral structure of Ukrainian economy in 2013 (% GDP)

Source: State Statistic Committee of Ukraine.

Exploring the impact of technological and industrial structural changes in Ukraine's economic growth, one could mention stable economic growth in the period from 2000 to 2004. It was ensured by the economic activity, accompanied by a rapid turnover of capital (metallurgy, chemical industry, mining industry, food industry). An important role of the capital should be noted, particularly through analysis of the role of foreign direct investment (FDI). Foreign investment inflow in Ukraine increased by 759 USD Million in the second quarter of 2016. Foreign Direct Investment in Ukraine averaged 1048.57 USD Million from 1998 until 2016, reaching an all time high of 6502.00 USD Million in the fourth quarter of 2005 and a record low of 589.00 USD Million in the first quarter of 2014 (Trading Economics, 2016).

However, economic growth, based on these economic activities, has a long-term nature.

Heavy industry remains very important for Ukraine. Metals, mining and machine production accounted for almost 50% of industrial sales in 2013. However, light industry subsectors, such as food processing, furniture and chemicals/pharmacy production have outperformed heavy industry in sales growth in 2010–2013, before the present crisis. With 26% of industrial sales food processing was also a single largest subsector in 2013. The share of relatively important industries in GDP has declined to 27% in 2013.

During 2014, according to the National Bank of Ukraine data, GDP drop was 7.5%, and UAH devaluation has reached 100%, the consumer inflation rate rose to 25%. Banking system has lost one third of all the deposits, and foreign exchange reserves of the country decreased to 7.5 billion dollars. Industrial production in Ukraine averaged -1.66 percent from 2000 until 2015, reaching an all-time high of 17.60 percent in April 2010 and a record low of -33.80 percent in January 2009. In 2015 industrial production in Ukraine has fallen by 13.4%. The main industrial potential is concentrated in Eastern Ukraine. The most affected production sector was coke and refined petroleum products, chemical products, steel products, engineering products. According to the National Institute for Strategic Studies, industrial production (excluding the portion of ATO zone) has decreased 2.5 times compared with 2014, metallurgical production has undergone the greatest reduction – 42.6% and mechanical engineering one – 46.3%.

In 2015 the fall in GDP is estimated to be 10-11%. The economy grew by 0.8 percent in the first half of 2016, compared to a contraction of 16 percent in the first half of 2015, but significant recovery and growth have not yet taken hold except in select sectors. (The World Bank, 2016)

Ukrainian producers cannot use their capacities in full, due to the high competition from the

cheap import that is coming a lot into the country, including gray schemes. These problems can be solved by decreasing the level of corruption, and making more transparent customs regulation. This will not only "raise up" domestic producers, but also increase the attractiveness of the Ukrainian market for foreign investors.

Ukraine became the first hundred ease of doing business ranking of Doing Business-2015, rising to 16 positions and took 96 places. However, the drafters of the rating noted some improvements in the business climate in Ukraine. Among them, for example, emit simplify the tax for businesses through the introduction of electronic system for filing and paying the single social tax. Data table 1 demonstrate significant change that Ukraine made starting a business easier by reducing the time required for VAT registration and by elimination business registration fees (See Tab.1).

Table 1

Doing Business Rating in Ukraine in 2015–2016

№	Item	DB 2016 Rating	DB 2015 Rating	Rating change
1	Starting a business	30	70	40
2	Dealing with construction permits	140	139	- 1
3	Getting electricity	137	138	1
4	Registering property	61	64	3
5	Getting credits	19	17	-2
6	Protecting minority investors	88	87	- 1
7	Paying taxes	107	106	-1
8	Trading across borders	109	109	No change
9	Enforcing contracts	98	98	No change
10	Resolving insolvency	141	141	No change

Source: (DB, 2016)

The representatives of business organizations have unanimously put equal conditions for all market participants as a very important element of the industrial policy. The duty of the state is to create equally clear and predictable rules for business. Without this any industrial policy will not be implemented.

While discussing the conditions for the domestic manufacturers in the domestic and foreign markets, some experts stressed the importance of giving support, primarily to small and medium businesses.

Structural change in Ukrainian industry affects the regional distribution of industry. Heavy industry is concentrated in the Southern and Eastern parts of Ukraine. Western part of the country specializes in agriculture and trade activities.

The problems of attraction and distribution of investments in the industrial sector in Ukraine involve structural disproportions eliminating (technological, sectoral, and regional ones). They are susceptible to the deepening of the imbalances in commodity and financial markets, the preservation of inefficient structure of production, monopolization of certain strategic or socially important sectors of the economy and inefficient use of raw resource base and production capacity.

A systemic assessment of product-market regulation in Ukraine evaluates three components: state control; barriers to entrepreneurship and barriers to trade and investment suggests that regulatory reform could contribute to greater efficiency of both resource allocation and production, accelerating convergence of Ukrainian regions. Experts suggest underpinning economic diversification, enhanced competitiveness and private sector development.

The research shows that regional industrial policy in Ukraine depends on the economic structure, which it reaffirms the need to change the structure of the economy in the direction of reducing the share of extractive industries and increasing the share of processing industries.

Scientists consider that Ukraine needs to identify priority areas of economic development in order to define what type of country's industrial development model they prefer to select. One can consider that the industrial and investment policies should not be compensatory, but stimulating. Then, the risk of the leaching tax base would be gone and favorable conditions for domestic and foreign investors in the Ukrainian production would be created.

The problems of attraction and distribution of investments in the industrial sector in Ukraine

involves solving the structural disproportions (technological, sectoral, and regional, by source of investment). They are threatened by the deepening of the imbalances in commodity and financial markets, the preservation of inefficient structure of production, the monopolization of certain strategic or socially important sectors of the economy, and inefficient use of raw resource base and production capacity.

Hypothesis and research design

Econometric estimation of the parameters, influencing gross regional product per capita (GRP) growth would be used to analyse regional development. The study will test the hypothesis, according to which industrial policy depends on the existing sectoral structure of the economy.

Modelling was based on annual data of gross regional product per capita (GRP) for 27 Ukrainian regions of Ukraine from 2005 to 2009. In detail, the following variables are available and are considered where index i runs over all 27 regions, and index t – over all the regarded time periods (years) (Data from Regional Statistical Surveys Ukraine, 2010). Theoretical framework of the empirical analysis is based on the hypothetical equation:

$$GRP_{it} = F(FCI_{it}, IPI_{it}, CPI_{it}, FDI_{it}, AW_{it}, NT_{it}, UR_{it}, RTR_{it}, WTR_{it}, EMP_{it}, RIN_{it}) \quad (1)$$

where GRP_{it} – Gross Regional Product per Capita (UAH);

IPI_{it} – Industrial Production Index, % (2000 = 100%);

FCI_{it} – Fixed Capital Investment per Capita (UAH);

CPI_{it} – Consumer Price Index (%);

FDI_{it} – Foreign Direct Investment per Capita (UAH);

AW_{it} – Average Nominal Wage per Worker (UAH);

NT_{it} – Number of Telephones per 100 Families;

UR_{it} – Unemployment Rate (%);

RTR_{it} – Retail Trade Turnover per Capita (UAH);

WTR_{it} – Wholesale Trade Turnover (mln. UAH);

EMP_{it} – Employment of Working People from 17 to 70 years (thous. people);

RIN_{it} – Real Income per citizen (UAH).

According to the State Statistic Committee of Ukraine, GRP is determined as a sum of the value added of all kinds of activities, including net taxes. The industrial production index is calculated as a value of produced products (works, services) in the corresponding prices. Consumer price index (inflation index) is considered as the index of the change of prices and tariffs for consumer goods and services consumption. Wholesale trade turnover is defined as resale of goods by enterprises without any changes (except conventional trade-related operations) to other enterprises and organisations (excluding individuals) for their consumption, subsequent resale either within Ukraine, or for exports. Wholesale turnover figures exclude VAT and excise tax. Retail trade turnover includes retail turnover of the enterprises, which are engaged in retail trade activities, and sales within the markets and by entrepreneurs.

GRP modelling, using 12 exogenous variables, demonstrates econometric results from 2005 to 2009. The significance of the coefficient is tested at 5% level of significance. Standard error is given in brackets.

GRP model, dependant on fixed capital investment, wholesale trade turnover, employment and real income per citizen, demonstrates significant relationships during 2005-2009 in the Ukraine (Table 2).

The GRP increase depends on the development of the wholesale trade turnover among enterprises in the regions. Negative coefficients for employment are caused by low labour productivity in industry, demographic trends, high share of pension expenditure in GDP ratio – in excess of 14 % (OECD, 2011), and significant share of working people in retail trade.

The use of SURE (Seemingly Unrelated Regression Estimation) model is intended for the analysis of a system of multiple equations with cross-equation parameter restrictions. SURE model gives more accurate estimation and is used in case of uncorrelated variables estimation. We've estimated the dependence of the gross regional product per capita from fixed capital investment per capita, wholesale trade turnover, employment of working people, real income per citizen. The results of estimation for 2005-2009 could be seen in the table 3.

Results of GRP modelling dependant on exogenous variables					
Regressor	2005	2006	2007	2008	2009
INT	-129,9 (687,3)	336,2 (682,5)	-1979,6 (1331,6)	-5512,9 (1374,9)	-4788,2 (2136,2)
IFC	2,7 (0,3)	2,4 (0,3)	1,5 (0,4)	1,2 (0,3)	1,17 (0,39)
WTR	0,05 (0,01)	0,07 (0,01)	0,06 (0,01)	0,03 (0,01)	0,042 (0,01)
EMP	-1,2 (0,3)	-1,1 (0,2)	-1,5 (0,4)	-1,3 (0,4)	-0,56 (0,51)
RIN	0,9 (0,3)	0,7 (0,3)	1,6 (0,4)	2,4 (0,3)	1,76 (0,43)
R ²	0,96	0,97	0,97	0,98	0,97
DW-statistics	1,75	2,07	2,19	2,19	1,7

Source: Author's calculation

The use of SURE (Seemingly Unrelated Regression Estimation) model is intended for the analysis of a system of multiple equations with cross-equation parameter restrictions. SURE model gives more accurate estimation and is used in case of uncorrelated variables estimation. We've estimated the dependence of the gross regional product per capita from fixed capital investment per capita, wholesale trade turnover, employment of working people, real income per citizen. The results of estimation for 2005-2009 could be seen in the table 3.

The significance of the coefficient is tested at 5% level. Standard error is given in brackets. Estimation results show significant relationship between GRP per capita and fixed capital investment per capita, wholesale trade turnover, real income per citizen in 2006–2007.

Table 3

Results of Gross Regional Product Estimations from Exogenous Variables (SURE)					
Regressor	2005	2006	2007	2008	2009
INT	2007,9 (414,3)	2667,3 (438,2)	3676,1 (659,1)	1948,6 (1004,5)	2036,2 (1569,7)
IFC	0,3 (0,12)	0,4 (0,1)	0,3 (0,1)	0,16 (0,1)	0,05 (0,19)
WTR	0,01 (0,004)	0,02 (0,01)	0,02 (0,001)	0,01 (0,01)	0,02 (0,01)
EMP	-0,5 (0,2)	-0,3 (0,2)	-0,5 (0,3)	-0,16 (0,5)	-0,08 (0,6)
RIN	0,5 (0,1)	0,3 (0,09)	0,18 (0,14)	0,95 (0,2)	0,92 (0,27)
R ²	0,46	0,48	0,43	0,53	0,61
DW-statistics	2,06	2,02	2,0	2,06	2,0

Source: Author's calculation

Insignificant relationship of GRP per capita from real income per citizen in 2007 and fixed capital investment in 2008, 2009, is caused by regulatory impediments for growing business. A product-market regulation in Ukraine includes three components: state control; barriers to entrepreneurship and barriers to trade and investment. It suggests that regulatory reform could contribute to greater efficiency of both resource allocation and production, accelerating convergence of Ukrainian regions (OECD, 2011). Experts suggest underpinning economic diversification, enhanced competitiveness and private sector development.

Decrease in standard errors values in table 2 in comparison with the analogous results for the same variables in table 1 points out the improved estimation results. The absence of significant coefficients in some equations confirms a need for ongoing statistical analysis of the data for a longer estimation period. The research shows that regional industrial policy in Ukraine depends on

economic structure, which reaffirms the need to change the structure of the economy in the direction of reducing the share of extractive industries and increasing the share of processing industries.

Scientists consider that Ukraine needs to identify priority areas of economic development in order to define what type of country's industrial development model they prefer to select. One can consider, that industrial and investment policies should not be compensatory, but stimulating. Then, the risk of the leaching tax base would be gone and favourable conditions for domestic and foreign investors in the Ukrainian production would be created.

Conclusions

In order to create competitive modern industry it is suggested to use developed countries' experience in the industrial policy. It is based on three main principles: international competitiveness of industrial products, export expansion and state protectionism with the emphasis on modernization of the economy.

Economic modelling examines the division between industrial regions with high urbanization and backward agrarian regions in the Ukraine. The basic problems, influencing the integration process of Ukrainian regions, are the following: industrial development disparities among regions; insufficient infrastructure (telecommunications, roads, hotels, services and etc.), low labour productivity in industrial sector, and insufficient regional trade. There is a need for adoption of the priority measures for regional policy improvement, including financial support of depressed regions, enhancing competitive sectors development and better access to new technologies, adoption of the programs, stimulating skilled workers training, and creation of an institutional network for regional development.

A number of specific measures that can be effective instruments of industrial policy include efficient regulatory framework, stable tax system, and barriers to decrease the amount of corruption schemes. While creating these conditions, the government should support the economy with special measures and state guarantees of protection for business.

Carrying out specific policies for foreign direct investments (FDI) attraction suggests removing barriers, selecting and business analyzing of the Ukraine's most attractive sectors in terms of competitiveness and FDI appeal.

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