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MODERN FEATURES OF TAX REGULATION OF TECHNOLOGICAL DEVELOPMENT OF ECONOMY OF UKRAINE

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Abstract. This article represents the investigation of qualitative characteristics of influence of tax factors on technological development and structural shifts in economy of Ukraine. The level of tax burden of the basic branches of a national economy is estimated and the comparative analysis of its distribution in a context of supporting opportunities of technological modernisation of manufacture is carried out. Tendencies of change of tax burden structure both in conditions of economic growth of 2001-2008, and in conditions of global crisis and at a stage of overcoming its consequences from the end of 2008 to 2010 are analysed. The findings about unevenness of the inter-branch sharing of the tax burden, defining structure of the distribution financial resource reproduction and bring about technological degradation of the economy are motivated. Methods of fiscal regulation of innovative - technological processes in the economy, which were realized during the reform of the tax system and the entry into force of the Tax Code of Ukraine since 2011 are described.

Keywords: tax burden, added cost, innovative development of the economy, technological structure of the economy.

Introduction

Recently a problem of acceleration of innovative process as a source of restoration of economic growth from consequences of global crisis has become more relevant. Defining strategic directions of anti-recessionary politics leading the countries of the world have selected a rate on innovative model of development as the increase of gross national product in these countries on 70-85% is provided with the new knowledge embodied in industrial technologies and equipment [Glazev, S.Y. 2007]. Introduction of innovations is the key factor of technological and economic superiority and market competitiveness of countries and companies. Leadership in industrial innovations provides super-profits at the expense of appropriation of intellectual rent forming due to exclusive use of more effective products and technologies.

Searching for urgent measures is a necessity for restoration of Ukraine's economy after the crisis, which have to be able to provide the subsequent modernisation of industrial potential of the country. Internal factors of present disorders of economy consist of technological degradation of national economy and, first of all, the industries; of strong dependence on low technology and raw branches; excessive export orientation; obsolescence of industrial equipment. Against the background of progressing world economy technological structure of the economy of Ukraine regresses, scientific and technical potential declines, the share of high-technology ways narrows, export of capital from the country is proceeded, national economy loses ability of independent reproduction. Therefore, national economy in global hierarchy declines to a condition of raw appendage.

In the course of market transformations of socio-economic system in Ukraine, extremely adverse conditions of financial maintenance of innovative-technological modernisation of industrial production appeared. Market mechanisms were found incapable of providing accumulation of resources for industrial innovations. Resolution of the identified problems demanded change of principles for state regulation of development of a national economy with the help of tax measures. Necessity of perfection of mechanisms of tax regulation arose owing to realisation of mainly fiscal function of tax policy of the state during the last decades, insufficient use of incentives fostering innovative processes and attraction of long-term investments into new 'know-how'. Unfortunately, the fiscal policy of the last decade caused the extremely uneven distribution of tax burden between sectors and branches of economy. Consequently, adverse tax conditions for functioning of high technology manufactures appeared and financial restrictions for technological modernisation of the industry became tougher.

The resolution of collected problems in the sphere of tax regulation of development of national economy is linked to reforming of the tax system. The central component of the tax reform is the entry into force of the Tax Code of Ukraine at the beginning of 2011. Current reforming of the country's tax system is directed towards construction of a modern competitive economy, supporting steady economic development on the basis of innovative investments.

In the developed countries, long-standing traditions were formed in economic relations of tax redistribution of the gross national product, economy of tax policy and tax regulation of structural shifts. Methodological bases of tax regulation problems are incorporated in scientific literature of scholar authorities [Devere, M.P. 2004; Buchanan, J.M. 2006; Stiglitz, J.E., 2000; Diamond, P.A., 2005] and others. Therefore, modern western researchers are mainly engaged in studying influence of particular tools of tax regulation on economic development. In this sense, scientific works of D.Czarnitzki [Czarnitzki, D., 2011] and R.Harris [Harris, R., 2009], who study economic results of granting tax credit for R&D expenses, are considerable. In countries with transition economy, where formation of the tax systems is being continued, and characterised by meaningful structural unbalance of economy, attention of researchers is largely riveted to problems of optimisation of branch structure of the tax system and rational distribution of tax burden. The given subjects are analysed in publications of authors coming from those countries [Shovkun, I.A., 2011; Kalinina O.V., 2010; Chernova M.V., 2009;

Edronova V.N., 2009; Sokolovska A., 2006; Vasiljeva A.A., 2005; Vishnevsky V., 2000; Balatsky E.V., 2000].

Target setting

In this article, the influence of tax factors on technological development and structural shifts in economy, both at the stage of economic growth and during economic crisis, and overcoming of its consequences is investigated. The level of tax burden of the basic branches of national economy is estimated and its comparative analysis is carried out. Aspects of fiscal regulation of scientific and technical and innovative processes of the economy, provided for in the Tax Code of Ukraine, are revealed.

In the course of research, methods of the analysis, synthesis, statistical comparisons were applied. In addition, the method of groupings was applied to reveal fiscal pressure on technological sectors of the manufacturing industry, grouped according to the criteria of the Organization for Economic Cooperation and Development.

Theoretical substantiation

Stable rule of the state fiscal policy, directed towards supporting economic development, is the liberation of target kinds of activity from taxes and granting subsidies to them. Low taxes and export tariffs allow introducing new technologies and manufactures into national economy. Currently tax stimulation of priority branches of economy, by assisting development and application of innovative technologies, also advanced technical equipment of industrial production is the important key factor accelerating the development of productive forces. Thus, the smaller part of the income, from application of the advanced technique-technology factors and saving of industrial resources, is withdrawn as profit taxes of the capital and on the earned income, the stronger is the effect of influence of tax stimulation on development of manufacture, first of all in a manufacturing industry.

The given dependence is confirmed by history of development of the world economy during many centuries [Polterovich, V., 2010]. Therefore, prosperity of the richest European countries was the outcome of wise economic policy based on introduction of high taxes on export of raw material and on import of finished industrial commodities, whereas import of raw material and export of finished commodities was encouraged by low duties. As a result of such policy, national production capacities were increasing, industrialisation of economy was ongoing, and accordingly the national riches were increasing. Such approaches were shown by a policy of England already since the times of rule of Edward III (1312-1377) [Reinert, Erik S., 2008]. Experts of history of the first industrial revolution insist that industrialisation of England has taken place without help of Adam Smith's *laissez-faire* and free trade policy but thanks to the institutional system, where taxes and a tariff-wall had the leading role [Ashworth W., 2003]. Then the European countries and such countries as the USA, Canada, Australia, New Zealand and Southern Africa accepted the policy which earlier provided for the industrialisation of England. To encourage national industrialisation, they introduced

high custom duties on import of an industrial output. As a result, for constructing its own steel industry, the USA legalized a 100% tariff-wall. Contrary to the theory of non-interference of the state and freedom of business, the modern USA protects many own branches with taxes - from agriculture to highly technological manufacture. It takes place thanks to comprehending an indisputable truth, that the source of progress are R&D-intensive technologies providing for economic well-being of the nation. However, these days the policy of liberalisation of foreign trade and rejection of protective tax policy is imposed through international organisations (such as WTO, IMF) on emerging countries, which causes their economic backwardness and therefore is contrary to their interests.

The basic theoretical postulate of the state tax policy is that taxes should not interfere with growth of production efficiency. The principle of production efficiency is realized, provided that all forms of economic activities 'in a limit' provide identical profitableness [Devere, M.P. 2001, p. 25-26]. If this condition is not observed, the size of cumulative riches can be increased at the expense of reallocation of capital in those actives or kinds of activity which provide higher limiting profitableness. The reallocation of private capital for search of greater profit will last until limiting profitableness becomes identical on each object of investment after payment of taxes. And only then the requirement concerning the alignment of limiting effective tax rates on all forms of actives or types of activity can be implemented by reason of principle of efficiency. If within the scope of a tax system there are different approaches to taxation of similar forms of actives or types of activity, such a 'hybrid' tax system constrains growth of economic prosperity.

According to the stated postulate, governments of advanced countries apply tax regulation with the purpose of achieving optimal efficiency of manufacture. At the same time, in an ideal situation, governments aspire imposing by tax the full sums of economic investment incomes by using uniform limiting effective tax rates. Optimal efficiency of manufacture is provided by granting tax stimulus for development of branches and types of industrial activity concerning new technological ways, and therefore more capital-intensive [Devere, M.P. 2001, p. 180, 194-195]; investment tax credits and other tax privileges to corporations for expenses on implementation of research and development, and also adoption of innovations [Shovkun, I.A. 2008; Ivanova, N.I. 2009]. The differentiation of tax rates provides for optimisation of inter-branch distribution of rate of profit on the invested capital and, thus, promotes improvement of structure of economy. [Sokolov, M. 2008, p. 62; Klinov, V. 2006, p. 38].

Necessity of regulation of economic dynamics by means of incentives to introduce innovative technologies in manufacturing industry was particularly distinct during the economic crisis. Economic necessity generated political will to change tax systems in the interests of development of a manufacturing industry and stimulation of application of advanced technical equipment and technologies. In this connection, the governments of the OECD countries approved decisions on transferring the burden of filling the state budget from taxation of income of mobile factors of production (labor and capital) to taxes on charges and property [OECD. 2011; USCIB 2011; Kolander D., 2010]. Also China, which managed to keep economic growth even during the global crisis, carried out active policy of tax stimulation of national manufacture. As a result, the investment charges were released from taxation. In particular, from the very beginning of 2009, the sums of VAT (Value Added Tax) paid during realization of capital construction [Mozias P., 2010] were

started to be refunded to enterprises. In addition, rates of compensation of the export VAT were reconsidered alongside the increases seven times during the period from August 2008 to June 2009 for stimulation of export of highly technological and labor-intensive production of the industry. Thus, the tax policy, which assists expansion of manufacture and technological development, provides overcoming an economic crisis.

The analysis of tax burden in economy of Ukraine

In the analytical plan action of tax factors for technological development of branches of economy is evidently shown at an estimation of a share of taxes in the value added. By the economic content the value added reflects a part of cost of the product created by an enterprise during manufacture, namely it is cleared of cost of products of intermediate consumption. A certain part of it is redistributed through the budget at payment of taxes according to existing legislation. Tax *burden* on the value added is one of the essential conditions of formation of a level of net profitableness of an enterprise, own sources of investment resources, and also serves as a reference point of expediency of investments into development of the enterprise. In this case the toolkit of definition of a level of tax *burden* supposes an estimation of a correlation of a total sum of taxes included in the value added (first of all, the profit tax and deductions to social funds), and size of the created value added.

The analysis of tax burden on the value added during economic growth of 2001-2008

Analytical calculations of the full rate of taxation of the value added and its elements (including types of final incomes as wages and profit) in economy of Ukraine testify that during economic growth that continued from 2001 by the third quarter of 2008, its level formed 13.6%. on average. Distribution of tax burden on branches of economy has been characterised by extreme non-uniformity. Therefore, in the industry the level of taxation of the value added was equal to 17.3 % on average and exceeded by one quarter the corresponding parameter on economy as a whole, whereas in trade and financial activity the level of taxation was much lower than average and amounted to 8.0% and 6.0% respectively (Figure 1). The statistical data testify significant scope of variation of levels of fiscal burden in branches of economy. The minimum level (6.1%) of the fiscal burden on the value added is almost three times lower than the maximum (17.3%) and the difference between them exceeds 11 %. The amplitude of fluctuation of a parameter amounts to ±5.6% concerning the center of variation equaling to 1355 %. The quadratic factor of a variation amounts to 51 %, its value essentially exceeds the maximum level on a 33 %. Thus, statistical estimations of a variation confirm our statement about exclusive heterogeneity of the whole set of branch parameters of tax burden on the value added. Individual values of tax burden on branches of economy vary in their limits exceeding maximum permissible ones, which testifies the necessity to correct the tax system with the purpose of settling unreasonable differentiation of interbranch distribution of taxes.

Dynamics of change of tax burden is characterised by stability of an inter-branch variation of its levels. Accordingly, during the period of supervision, the limits of the tax burden of the value added of the industry changed from 13% up to 19% (Figure 1), financial activity - from 5% up to 8%, trade - from 6% up to 9%. The differentiation of levels of tax burden of the named branches of economy has been steadily remaining for a long time already.

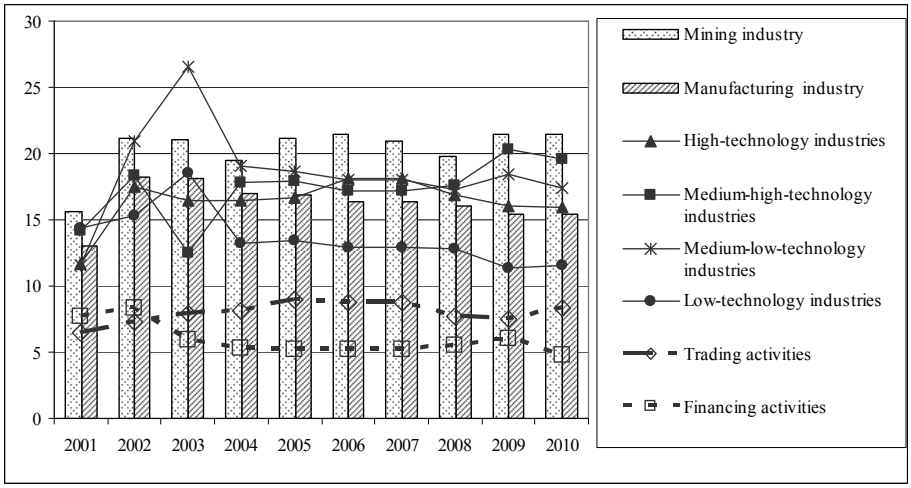

Figure 1. The fiscal burden on the value added in branches of economy and technological sectors of manufacturing industry of Ukraine in 2001-2010 (percent) (This figure is drawn up by the author on the basis of official statistical data contained in the annual forms of reporting of the State Committee of Statistics of Ukraine (Form No2 'The Report on financial results')

The tax burden on the factors of manufacture during economic growth of 2001-2008

Between major factors of manufacture (labour and capital) the tax burden is also distributed unevenly. Taxes on labour form almost three fifths (8.0%) and taxes on capital - over two fifths (5.5%) in cumulative tax burden of the value added in economy of Ukraine. Regulating influence of the tax system on the organic structure of capital in branches of economy, attraction of investments and manpower, competitiveness of economy are connected with unevenness of this distribution. At the same time, taking into account inflexibility offers of labour to the taxation of incomes, putting greater tax burden on labour than on the capital, influences on change of a level capital-labour ratio on manufacture negligibly, contrary to a popular belief. For example, according to our calculations, tendencies of decrease of a level capital-labour ratio dominated among industries in 2001-2008. In particular, in comparison with dynamics of change of this parameter in other industries, capital-labour ratio in the mining industry, which is one the most laborious industries, reduced by accelerated rates. In the ratio factors of manufacture in the industry of Ukraine the reduction of a share of the factor of labour in favor of increase of the capital is not observed. Thus, rather high taxation of

labour does not cause changes in proportions of use of factors of manufacture. On the contrary, in structure of operational expenses of industries and technological sectors of the manufacturing industry there was a dynamic growth of specific weight of expenses for a remuneration of labour, which was accompanied by decrease in a capital-output ratio. Obviously, low profitableness of investments into industrial production, low profitability of manufacture and a high level of tax burden on incomes of the capital are affected.

As far as the tax burden of the value added is formed basically under influence of profit tax and deductions to social funds, it is important to find out to what extent each of these factors influences the formation of general heterogeneity of distribution of the tax burden. Comparison of a great number of values of burden by the profit tax of the value added in economy of Ukraine testifies disproportionate distribution of this totality. In economy the level of the given parameter was 5.5% on average during 2001-2008, but on the branch level it varied from 3.7% in financial activity up to 7.8 % in the mining industry and 9.0 % in sector medium-low-technology productions of the manufacturing industry (Figure 2). Bounds of a variation (5.3%) and value of quadratic factor of a variation (44.3 %) refer to significant heterogeneity of aggregate and excessive interbranch differentiation of levels of burden of the value added by the profit tax.

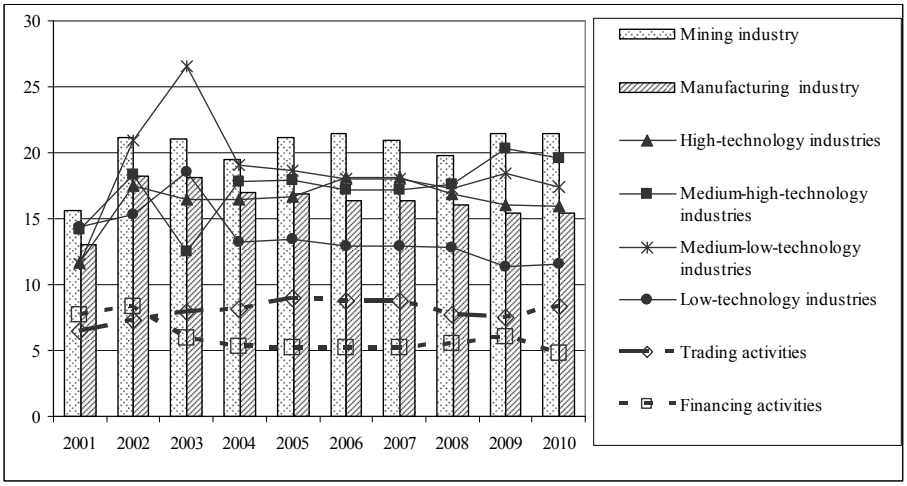

Figure 2. The burden of the value added by the profit tax in branches of economy of Ukraine and technological sectors of the manufacturing industry in 2001-2010 (percent)

The author uses a parameter for estimating influence of the profit tax on formation of net profit, which is calculated as the ratio of the sum of the profit tax to net profit, remaining for the enterprise after payment of the tax, which the author will name as conditional effective rate of the profit tax. Comparison of aggregate parameters of the conditional effective rate of the profit tax on branches of economy testifies its significant heterogeneity. Therefore, amplitude of scattering of values of a parameter on branches concerning center of distribution on economy as a whole (32.6%) varies from the minimum 8.2 % in financial activity up to 43.9% in high-technology sector

of a manufacturing industry (that is, 5.4 times exceeds the minimum) and up to the maximum 49.6% in mining industry (that is, 6.1 times more than the minimum). The average quadratic deviation of the conditional effective rate of the profit tax from center of distribution is 17.2% that corresponds to the value of quadratic factor of a variation of 529%, exceeding the limit level by 33 %.

The given values of statistical characteristics of a variation of parameters of the conditional effective rate of the profit tax testify its extremely non-uniform distribution between branches. On the basis of the resulting statistical calculations, it can be asserted, that the tax system existing during the analysed period of 2001-2008, did not provide for a just distribution of the tax burden by the profit tax, created unequal tax conditions for functioning branches of economy. On an industrial production in general and in particular on a high-technology sector of manufacturing industry are entrusted excessive burden by the profit tax at present tax system, which sharply contrasts with the facilitated level of taxation of other sectors of economy. Owing to such distribution of tax burden, there is a smaller part of net profit in the industry than in other branches. Thus the industry is *a priori* put in the worse situation of accumulation of financial resources for reproduction of its industrial potential.

The ratio of tax burden and profitability of capital during economic growth of 2001-2008

Proportions of distribution of burden by the profit tax in branches of economy are not coordinated with levels of profitableness of own capital. In particular, during the period of supervision, the conditional effective rate of the tax in industries was considerably higher than the level of rates applied for economic operators of financial activity and trade (Figure 3).At the same time, the level of profitability of own capital in the industry was much lower than in the sphere of finance and trade (Figure 4). For example, the level of profitability of own capital of trade was 49% on average, financial activity - 22 %, but in the manufacturing industry it was somewhat smaller - only 11%, including high-technology manufactures - 5%.

The dimensional ratio of the conditional effective rate of the profit tax between branches is in an inverse proportion with a level of profitability. Accordingly, for economic operators of financial activity the rate is only 8.2%, and trade - 27%, and over 38% in the manufacturing industry, including high-technology manufactures with 44%. It can be seen that the proportions of distribution of tax burden by types of economic activity only strengthen a differentiation of profitableness, which as it is excessive. Therefore,

firstly, the industrial production and especially its high-technology segment, have deficit of own means necessary for realising expanded reproduction of the industrial capital;

secondly, the industrial enterprises are put in an evidently unequal conditions of an inter-branch competition for attracting capital for modernisation of industrial potential;

thirdly, efficiency of investment of capital in manufacture is reduced as opposed to an investment of means in trading - financial operations, owing to this there is an outflow of capital from the industry;

fourthly, as a result, the processes of deindustrialisation of national economy are accelerating and competitiveness in the world markets is declining.

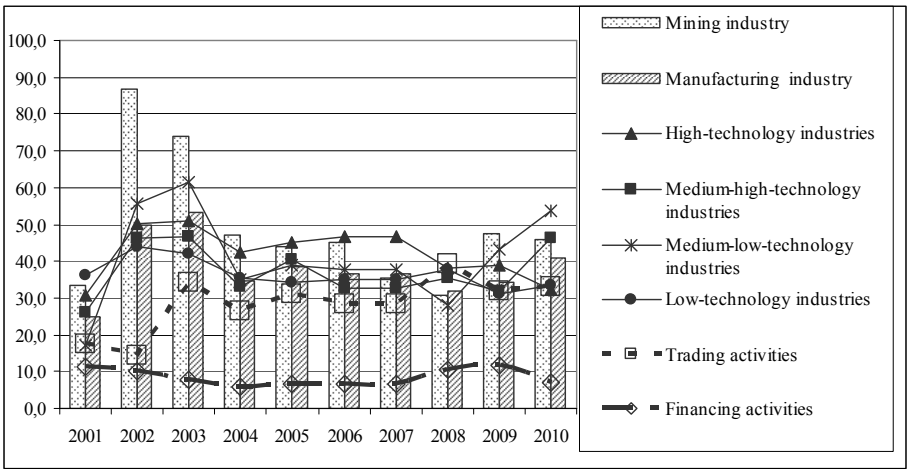

Figure 3. The conditional effective rate of the profit tax concerning net profit in branches of economy and technology sectors of the manufacturing industry of Ukraine in 2001-2010 (percent)

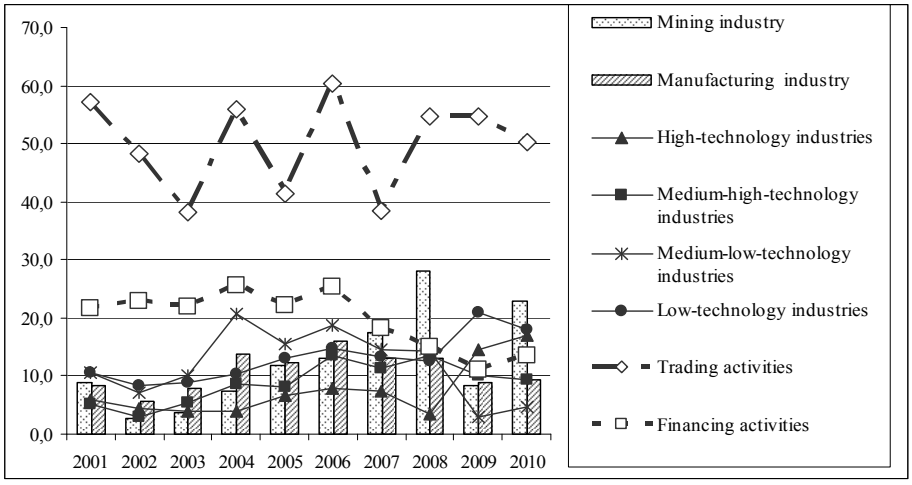

Figure 4. The profitability of own capital in branches of economy and technology sectors of the manufacturing industry of Ukraine in 2001-2010 (percent)

In a set of industrial activities the tax *burden* varies in close limits. In particular, in the manufacturing industry 16.5% of the value added is redistributed through taxes, but in the mining industry it's 201% (Figure 1). These differences are predetermined by objective economic conditions of functioning of branches, for example, by different labour-intensive of manufacture and corresponding specific gravities of salary expenses in the price of production.

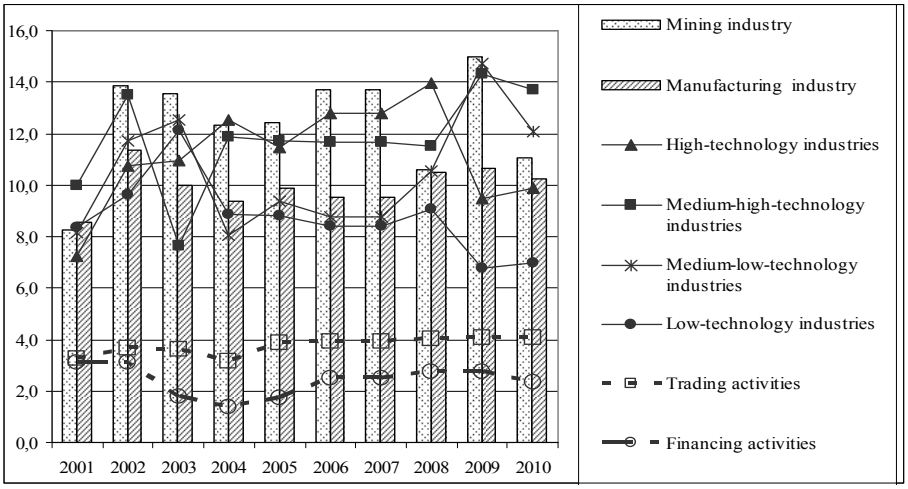

Figure 5. The burden on the value added by deductions to social funds in branches of economy and technology sectors of the manufacturing industry of Ukraine in 2001-2010 (percent)

Distribution of variety of values of specific gravity of taxes to labour in the value added on branches of economy is not homogeneous. In national economy specific expenses of deductions in the state social funds in the value added during 2001-2008 were 8.0% on average. At the same time, the amplitude of fluctuations of branch parameters is limited to values from 2.4% in financial activity up to 11.6% in high-technology sector of the manufacturing industry and up to 12.3% in the mining industry (Figure 5). The difference between the minimum and maximum values of a parameter amounts to 9.9%. The average square-law deviation of individual attributes from centre of distribution exceeds 51%, the quadratic factor of a variation is 642% and exceeds a limit level equal to 33%. The given statistical characteristics testify the heterogeneity of a variation of specific gravity of expenses on deductions in social funds in the value added by branches of economy.

The reasons of this phenomenon consist in differentiation of levels of labour-intensive of branches of economy, in inter-branch differences of the size of salary payment, and also in the use of different systems of taxation, on which different norms of deductions in social funds are established. In particular, the mining industry and high-technology sector of a manufacturing industry, in comparison with non-productive branches of economy, are highly labour-intensive by quantity of workers and by the level of salary expenses. Specific expenses for salary payment in structure of operational expenses of the mining industry for the period of supervision were 29% on average, in high-technology branches of the manufacturing industry they were 22%, in low-technology branches - 11%, in trade - 12%, in financial activity - 16%. Besides, the monthly average nominal wage was 1906 UAN in national economy in 2009, and its amount was differentiated by types of economic activity as follows: in the industry - 2117 UAN, in trade - 1565 UAN, in financial activity - 4038 UAN [Statistical, 2010].

The additional factor of differentiation of specific expenses on payments to the state social funds is the existence of two systems of taxation - the general system and simplified system. Therefore, the majority of economic operators are occupied in the trading-intermediate kinds of activity, use the simplified system of taxation owing to what have a preferential mode of payment of deductions in the state social funds. At the same time, the industrial enterprises that mainly use the general system of taxation are compelled to spend deductions to social funds under full rates. As a result, more than 10 thousand UAN is paid every year in the industry per worker, whereas per economic operator using the simplified system of taxation the state receives tax payments for the sum 800 UAN on average during the year [Protocol, 2009] or a maximum of 2.4 thousand UAN. Thus, the distribution of the tax burden between economic operators of the general system of taxation and economic players of the simplified system is extremely unfair.

Tendencies of change of structure of tax burden in conditions of an economic crisis and at the stage of regenerative growth

During the global crisis backwardness of the economy of Ukraine was distinct. Dependence on export of production of chemical and mining - metallurgical complexes, low competitiveness of the manufacturing industry and weakness of the financial market were the principal causes of deep fall of the national economy.

By reason of deterioration of the external economic situation, in the full swing of the crisis the income, first of all that of enterprises - exporters and manufacturers of production with a low degree of processing, were reduced essentially, and this influenced their ability to pay taxes. So, in 2009, in comparison with the pre-crisis period, volumes of tax payments of the enterprises in the mining industry reduced to 20% (Figure 6), that was connected with the decreasing demand for a source of raw materials and reduction of their prices. At the same time, tax payments of a process industry decreased on 19% in the result of reduction of volumes of tax payment by medium-high-technological sector on 30% and medium-low-technological sector on 35%. At that time, high-technological and low-technological sectors of the manufacturing industry showed immunity to the crisis that allowed them increasing production and payment of taxes to 40% and 10% accordingly.

Comparative dynamics of change of tax payments of the enterprises of the industry shows stability of high-technological sector in the context of crisis. Inside this sector it is necessary to emphasize the enterprises in the aerospace complex, which increased payment of taxes and tax duties on 89% in full swing of the crisis. Similar stability was achieved, first of all, due to monopoly on the intellectual capital collected by the aerospace complex, as result, the reserve of its competitiveness is provided. Certainly, state support is promoted to development of enterprises of the complex and an effective exploitation of their potential, by attracting enterprises to implement state target scientific and technical programs in the area of aerospace; wide participation of enterprises in international scientific and industrial cooperation (with Brazil, Kazakhstan, the Russian Federation, the USA, other countries); replenishment of a portfolio of or-

ders of the enterprises by applications from national and foreign airlines, companies of communication branch, etc.

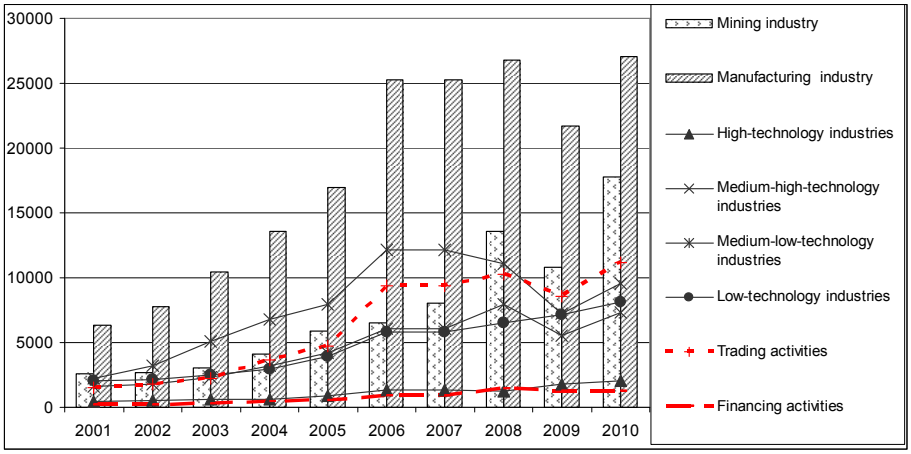

Figure 6. The paid taxes included in the value added, according to branches of economy and technological sectors of the manufacturing industry (million UAN)

We should underscore that during the crisis enterprises manufacturing pharmaceutical preparations, included in the high-technology sector, increased the volumes of manufacture and received income, therefore, their payment of taxes increased on 48 % in 2009, compared to the previous period. It is obvious that the given result was achieved due to steady effective internal demand for production of pharmaceutical manufacture, at price availability and satisfactory quality of medical products of domestic production to the mass consumer. The government of Ukraine aspires to creating conditions for adjustment of manufacture of sufficient quantity of quality medical products and immuno-biological preparations, vaccines, recombinant proteins, diagnostic that would allow replacing outputs of foreign manufacture. To this effect, in 2011 the government sanctioned the State target scientific and technical program of development of the latest technologies for the creation of domestic medical products, to be financed on partner conditions for account of the state budget and means of private investors [The Government, 2011]. The financing of implementation of fundamental and applied R&D within the performance of a given program will be performed for account of the state budget and the means of investors will be directed for purchasing modern equipment for manufacturing of innovative types of production - medical substances of different purpose.

The low-technology sector of the industry has also insignificantly yielded to influence of adverse fluctuations of a conjuncture of the world market, such as its production uses a great demand in an internal market according to comparative competitive advantages of the low prices and high quality. First of all, it concerns manufacture of foodstuff and drinks, the publishing, separate manufactures of light industry. The enterprises of the given types of activity increased or kept pre-crisis volumes of manufacture and net profits and therefore increased absolute volumes of payment of taxes and deductions to social funds.

On this background, parameters of dynamics of volumes of payment of taxes by enterprises in the medium-technology sectors are contrasting. The given sector is represented at the greatest degree by export manufactures, and therefore its production is subject to tough competition in the world markets. Under influence of the global crisis and falling demand in the markets in 2009 the following enterprises have suffered most:

- motor-car construction industry, resulting in reduction of volumes of paid taxes on 59%;
- manufacturing of railway and tram locomotives and a rolling stock owing to reduction of cargo transportation by rail (reduction of tax payments was 55%);
- chemical manufactories, which, among other things, faced so far unknown spike for raw material, therefore, tax payments were reduced to 55%;
- metallurgy, despite of the program of support for mining and smelting complex accepted by the government in conditions of the global economic crisis, reduced profitableness and payment of taxes on 35%.

Reduction of income and accumulation of debts on payments to the budget in enterprises operating in mining and smelting and chemical complexes occurred, on the one part, owing to the falling demand and prices for their production, and, on the other hand, owing to spikes on power and a source of raw materials (it is known that from 2009 Ukraine buys the Russian gas at prices above the Central European prices). The government undertook actions to stabilize economic situation of these complexes by sanctioning the moratorium on increase of tariffs for the electric power and rail transportation, and also by fixing reduced rates for natural gas for enterprises in mining and smelting and chemical complexes [[Resolution, 2008]. The given measures were undertaken from October 2008 up to the end of the first quarter of 2010.

Taking into account the social and economic importance of enterprises in the medium- technology sector, creating the largest part of the gross domestic product and bearing the basic burden of payments in the consolidated budget of the country and in social funds, the government also undertook other measures of anti-recessionary regulation. However, essential dependence of this sector on fluctuations of a global conjuncture determines budgetary instability of the country. Reduction of tax receipts from medium-technology enterprises to the budgetary system predetermined impossibility of using Keynesian tools of anti-recessionary cure of the economy, which provided the reduction of tax rates for the purpose of stirring up business in conditions of stagnation.

The analytical data of dynamics of tax payments show that unsteadiness of model of economy, which, in the global system of a division of labor, is aimed at manufacturing raw production and production of a low degree of processing (mining and smelting complex, chemistry and petro-chemistry). Such a model essentially concedes to models of specialisation of national economy on manufacture of high-technology production whose stability even in conditions of the global crisis is provided by investment income from exclusive possession of intellectual capital.

Unfortunately, lessons of the crisis are not taken into account. The economy of Ukraine is recovering, first of all, due to high prices for raw, metallurgical and chemi-

cal production that supports growth of its export and keeps previous structure of the industry. Thus, domestic demand for consumer goods and investment production is substantially satisfied due to import. Negligible growth of high-technology sector is changeable and does not essentially impact the general structure of manufacture, as well as the amount of tax income of the budget. But the reduction of volumes of manufacture and income of the medium-technology sector, which is the main payer of taxes of the industry, cannot be compensated by expanding manufacture in low-technology sector which has considerably smaller tax obligations. Consequently, the state budget receives less tax income. Despite the fact that the majority of industries recovered in terms of economic growth in 2010, the medium-technology sector of a manufacturing industry, in terms of the amount of tax payments, did not achieve the pre-crisis parameters, but the enterprises of the mining industry, high-technology and low-technology sectors surpassed their pre-crisis levels.

The rate of taxes wasn't changed in Ukraine. It is contrary to global practice of reduction of rates on payroll tax and income of capital with the purpose of simplification of fiscal obligations of enterprises and improvements due to their financial condition during the crisis. In 2008-2009 the tax burden on the value added on economy as a whole was reduced to 12.8-13.7%, compared to 13.9% in the previous period by reason of natural causes - reduction of income of taxpayers forming the base of taxation. In the process of overcoming the crisis the tax burden increased up to 14.7% in 2010. At the same time, the essential differentiation of inter-branch distribution of tax burden on the value added (Figure 1) was unchangeable. The tax burden for enterprises operating in trading and financial sectors remained essentially lower and amounted only to 7.5% and 6.0 % in 2009 (8.3% and 4.8% in 2010 respectively), compared to those in the industry sector – 17.3% in 2009 (and 17.8% in 2010) . The variation of levels of tax burden in the manufacturing industry was amplified due to its reduction for high-technology and low-technology manufactures and increase for medium-technological.

The causes of the changes referred above are related to shifts in distribution of tax burden between factors of manufacture. If in full swing of the crisis the burden of the value added by the profit tax in the medium-technology segment reduced (Figure 2), then, on the contrary, the burden of the value added by deductions in social funds increased (Figure 5). In 2009, the tax burden in high-technology and low-technology segments changed in opposite directions – it was increased for capital and reduced for work. At the same time, in 2010, the correlation of sums of the profit tax and net profit in the industry was varying within the limits of 31% (in the low-technology segment) and 43% (in the medium-technology segment) and up to 47 % (in the mining industry) and was changing alongside some increase in the scope of a variation from 33% up to 54%. On the background of parameters of the industry, the financial sphere was in exclusive position as correlation of the sums of the profit tax and net profit did not exceed 11.6% (in 2009) and even decreased up to 7.1% (in 2010).

Thus, in the economy of Ukraine at a stage of crisis and after crisis restoration, key parameters of inter-branch distribution of the tax burden, formed during the last decade and characterised by extreme non-uniformity, were remaining. The formed ratios

give competitive advantages to the financial sector in attraction of the capital that provokes continuation tendencies that appeared earlier in inter-branch floating of capital and this takes place not in favor of the area of manufacture. Taking into account such circumstances as well as high degree of integration of the financial market of Ukraine in the global financial world, also the fact that instability of the global financial system permanently provokes financial and economic crises, it is possible to predict a high degree of risk of recurrence of the crisis in the national economy. The given circumstances demand radical change of tax policy in the economy of Ukraine, by providing mechanisms of tax stimulation of industrial production and strengthening tax control over activities of the financial sector.

Features of regulation of innovative technological development of economy according to the Tax Code of Ukraine

In our opinion, the revealed problems of negative influence of tax factors on technological structure of economy of Ukraine and on the opportunity of technological modernisation of industrial production can be effectively solved in the process of reforming the tax system of the country. Such an opinion is based on the analysis of regulatory influence of the Tax Code of Ukraine, put into operation in 2011 [Tax code. 2011]. This code stipulates different forms and methods of tax assistance to scientific and technical and innovative development of the economy. The variety of forms and methods of granting tax preferences can be systematized on directions. In particular, stimulation of scientific and technical activity is achieved due to the following legal rules of the Code:

inclusion in the structure of expenses, in the process of definition of object of taxation, expenses related to scientific and technical maintenance of economic activity; expenses on invention and rationalisation of economic processes, of implementation of research and design works, manufacturing and research of models and tests related to the main activity of the taxpayer (Article 140.1.2 in Section III. Profit tax of enterprises);

tax exemption of incomes of scientific institutes, as non-profitable organisations maintained from the budget (Article 157.10. in Section III. Profit tax of enterprises);

stimulation of charity of residents in relation to the taxpayer implementing scientific research or development, for compensation of cost of equipment, materials, other expenses, on condition that the results of such research or development activity is promulgated and it cannot be the subject of patenting or other restrictions in promulgation or gratuitous distribution of objects of the right of intellectual (industrial) property (Article 170.7.4 in Section IV. Tax on income of natural persons);

releasing from taxation by VAT of the following operations:

a) payment of cost of fundamental investigations, research and development works by a person directly receiving such means from the account of the State Exchequer of Ukraine (Article 197.1.22. in Section V. Value-added tax);

б) free-of-charge transfer of devices, equipment, materials to scientific institutes and scientific organisations (Article 197.1.23. in Section V. Value-added tax);

releasing from payment of the land tax of experimental farms of research establishments and educational institutions of an agricultural structure (Article 282.1.2. in Section XIII. Payment for the land). Furthermore, scientific establishments provided with state or local budgetary resources are released from payment of the land tax (Article 282.1.8. in Section XIII. Payment for the land);

releasing from payment of the duty for special use of water of research establishments taking water for implementation of scientific research in the sphere of rice sowing (Article 324.4.5. in Section XVI. Duty for the special use of water).

Tax support of investment in industrial and technological innovations will be achieved by granting tax privileges, reduction of tax rates and base of taxation. Therefore, it is supposed that as a result of step-by-step reduction of rate of the profit tax from a level of 25% (applicable till 01.04.2011) to 16% (Article 151.1. in Section III. Profit tax of enterprises) an innovative investment component of economic development will be provided.

There are meaningful stimuli for introduction of energy-efficient technologies in the economy. To this effect, temporary preferential terms of taxation of profits of enterprises, obtained in the result of introduction of energy-efficient technologies, are introduced (Article 158.3. in Section III. Profit tax of enterprises). In particular, 80% of profit of enterprises can be released from taxation, on a condition that those companies manufacture and sell in Ukraine various equipment, materials providing energy-effectiveness of the economy (Article 158.1. in Section III. Profit tax of enterprises). In addition, 50% of profit are also released from taxation due to implementation of energy-saving actions and power-efficient projects of enterprises (Article 158.2. in Section III. Profit tax of enterprises). The special-purpose character of use of a tax privilege is based on an obligatory requirement of direction of the corresponding sum of means to increase volumes of manufacture.

Temporal tax stimuli on preparation for transition to the use of alternative kinds of fuel are provided for solving problems relating to energy-safety of the national economy. Firstly, some operations are exempted from payment of the value-added tax, namely supply and import of technical equipment, equipment used for reconstruction of available and construction of new enterprises manufacturing biofuel; manufacturing and reconstruction of technique and vehicles consuming biofuel, if such goods are not made and have no analogues in Ukraine (paragraph 7.3 in Section XIX. Final and transitional positions). Secondly, certain types of profit of enterprises are exempted from taxation with profit tax, in particular profit of manufacturers of biofuel, received from sale of biofuel; profit of enterprises received from activity of manufacturing electric and thermal energy with the use of biological types of fuel and renewable energy sources; profit of manufacturers of technical equipment used for manufacturing and reconstruction of technique and vehicles consuming biological types of fuel and producing on the territory of Ukraine (paragraphs 11.1., 11.3.в) in Section XIX. Final and transitional positions).

In addition, profit of enterprises received by them from economic activities on extraction and use of gas (methane) from coal deposits is exempted from taxation (paragraph 11.2. in Section XIX. Final and transitional positions). It is important that

privileges have a special-purpose character, as sums of received means should be used by the tax payer to reduce the price of cost of production, increase in the volumes of manufacture, re-equipment of material base, introduction of the latest technologies.

Complex of tax stimuli is dedicated to reviving enterprises engaged in high-technology types of activity, such as spacecraft and aircraft building. Firstly, it talks about temporary exemption from payment of the value-added tax of operations on delivery in a customs regime of import of goods, under condition of special-purpose use of such goods for manufacturing space technical equipment, and also delivery to the customs territory of Ukraine of results of research and research-design works implemented by tax payers for residents - subjects of space activity, (paragraphs 3 and 4, subsection 2 in Section XIX. Final and transitional positions). Secondly, it talks about temporary exemption from taxation of profit of enterprises in the aircraft building industry, also of enterprises manufacturing equipment and accessories used for manufacturing and repairing planes and helicopters (paragraph 17.g) in Section XIX. Final and transitional positions).

According to paragraphs 17, 18 in Section XIX entitled 'Final and transitional positions' other types of enterprises operating in priority branches of industrial production have received tax support in the form of temporary exemption from taxation, namely:

- lighting industry;
- power industry;
- hipbuilding;
- mechanical engineering for agriculture;
- publishing and printing industry.

Practical realisation of the given privileges provides tax stimulation of processes of improvement of structure of economy and technological modernisation. In particular, it is achieved on the basis of a normative requirement on the target use of sums of means received in connection to granting tax privilege to enterprises taxpayers (subparagraph 21 in Section XIX. Final and transitional positions). The saved means are necessarily directed for increasing volumes of manufacture (provision of services), re-equipment of the material base, introduction of latest technologies connected with primary activity of such a taxpayer, and/or returning of credits used for the given purposes, and payment of interest on such credits.

The review in this article of forms and methods of tax assistance to scientific, technical and innovative technological development of economy, as included in the Tax Code, testifies its complexity and variety. However, effectiveness of some rules will probably turn out less than expected owing to such reasons as absence of a target orientation of the tax policy on an innovative component of economic development.

In conclusion, we consider that unreasonable expectations of those innovative processes of the economy from stage-by-stage decrease{reduction} in the rate of the profit tax will become more active. Actually, this norm has no precise target orientation for stimulating investment in innovations. Simple decrease{reduction} of rates is a passive stimulus to investment into manufacture and therefore ineffective, whereas target investment tax privileges are an active and effective means of solving problems {tasks}

of expansion of investments into development of the economy. Actually, the decrease {reduction} in the rates of the tax does not guarantee re-investing the profit, whereas the state budget will lose income.

Unfortunately, the Code fails to provide tax stimuli for activity of subjects of innovative infrastructures, such as industrial parks. Until recently, a wide range of forms of target privileges for technological parks were in place. It included privileges on payment of profit taxes, value added, import customs duty and accelerated amortisation.

Also 'tax scissors' for adjacent types of financial activity have not been eliminated. On account of it, financial companies minimise tax obligations by using mechanisms of transfer pricing. Owing to existence of such '"scissors"' subjects of financial activity use the tax privileges unavailable to subjects of the industrial sector.

Nevertheless, realisation of the given tax norms allows increasing profitability of priority branches of industrial production, scientific and innovative activity, and in the result - to provide improvement of structure of economy and growth of well-being of Ukraine due to modernisation of industrial potential on an innovative basis.

CONCLUSIONS

Thus, various statistical characteristics prove validity of the conclusion regarding limiting heterogeneity of an actual level of tax load of the value added in aggregate branches of economy of Ukraine. Heterogeneity is expressed by the fact that industrial production has twice, and even the three times higher tax burden than the sphere of trading and financial services. The differentiation of tax burden between branches of economy exists in conditions when majority of taxes are being collected on the basis of the so-called flat scale and in obvious absence of branch differences in the tax rates, ostensibly called to create conditions of tax competition equal to all economic operators. Actually, there is no uniformity of distribution of tax burden in the tax system of Ukraine.

In order to help the national economy of Ukraine overcoming the consequences of technological decline, a radical change of the State tax policy is required to direct it towards regulation of structure of the national economy, stimulation of industrial manufacture, considerably, to make active use of tools of tax stimulation of innovative-technological development and intensification of motivation of financial sector to the serve requirements of the industrial sector. Putting into operation of the Tax Code of Ukraine, which represents the wide spectrum of methods of assistance to scientific,technical and innovative processes, is a first step on the way to tax maintenance of improvement of structure of economy and modernisation of industrial potential.

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ŠIUOLAIKINĖS TECHNOLOGINIO EKONOMIKOS VYSTYMO MOKESTINIO REGULIAVIMO PRIEMONĖS UKRAINOJE

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Santrauka. Straipsnyje pateikiama mokestinių faktorių įtakos technologijos vystymuisi ir struktūriniams pokyčiams Ukrainos ekonomikoje kokybinė analizė. Įvertinta mokestinės naštos, tenkančios pagrindinėms nacionalinės ekonomikos šakoms, dydis, atlikta jos pasiskirstymo lyginamoji analizė ir įvertinta jos įtaka skatinant pramonės technologinio modernizavimo galimybes. Straipsnyje išnagrinėtos mokesčių naštos struktūros kaitos tendencijos ekonominio augimo nuo 2001 iki 2008, tap pat globalios krizės ir krizės pasekmių įveikimo nuo 2008 iki 2010 metų sąlygomis. Nustatyta, kad nevienodas tarpšakinis mokesčių naštos paskirstymas, finansinių išteklių reprodukcijos apibrėžiamoji struktūra daro įtaką ekonomikos technologinei degradacijai. Aprašyti inovacinių technologinių procesų ekonomikoje fiskalinio reguliavimo metodai, kurie buvo įvesti per mokesčių sistemos reformą ir įsigaliojus Ukrainos mokesčių kodeksui 2011 metais.