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Information included in the monograph "Globalization: economic and social aspects" will be particularly useful for scholars, politics and those who are interested in finding ways to ensure a positive synergy of changes for society in a globalizing world.

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INTRODUCTION

With this scientific monograph, National Academy of Management (Kyiv, Ukraine) and publishing house PublishNation (London, Great Britain) start a series of publications dedicated to research of the 21st century humanitarian and socio-economic problems.

Structural transformations that take place in a modern globalized space require the world community to build new conceptual approaches to the disclosure of the social and economic aspects of the sustainable development of national economies.

The main purpose of the monograph is to study the concepts of economic development and the dynamics of stabilization processes at the macro-, meso- and micro- levels. Proceeding from the above, the monograph materials are structured in three sections.

The first chapter examines the current state and economic development of national economies in a transformational environment. Particular attention is focused on the challenges and threats of the 21st century, which can break the systemic relationships existing in the national economy and lead to crises.

The second chapter is devoted to the disclosure of business strategies in the globalized world and explores the models of management of business structures.

The third chapter reveals social and labor relations in the context of globalization. Problematic issues in the labor market and property relations form the basis of the scientific research of this section.

This research will be of interest to scholars, practitioners, authorities and business structures, as well as to all those interested in promising areas of economic growth in a globalized world.

The editorial board is sincerely grateful to the authors for the support of the idea of publishing the monograph, since it has not only a scientific character, but also contains specific proposals and recommendations for the further transformation of economic and social processes at all levels of structural and in various fields of activity.

CHAPTER I

NATIONAL ECONOMIES IN THE CONTEXT OF GLOBALIZATION

Cherlenyak I., Mashiko K.

CHALLENGES OF GLOBALIZATION AND SPECIFIC FEATURES OF TRANFORMATIONS IN UKRAINE'S ECONOMIC ORDER

Introduction. In front of globalization the world faces a new reality which demands living according to 'global online' principles. The specific features of global development are changing under such total influence of globalization, the traditional forms of social organization undergo transformational and modernization changes and become replaced by global society and global risk society (Voitovych, 2013).

Under such circumstances, there is a risk of disappearing the least developed countries from the geopolitical map, or their changing into provinces or parts of other states. The problem of Ukraine's "economic survival" has become urgent with the start of the new stage of global economic development, with growing of the so-called 'new postindustrial economy'. We consider that regardless 'transparency' of society and openness of economic and political borders, Ukraine has fallen into a transformational trap.

The economic aspect of globalization presupposes a total competition within our state among the firms, which are not being under conditions of monopolies artificially created by the state. Thus, two fundamental challenges arise in front Ukraine under globalization: 1) growing amount of out payments; 2) competition of Ukrainian firms at their territory with more resourced foreign firms.

How did it happen that Ukraine has fallen into a transformational trap? Did only economically and strategically wrong alternatives of managerial decisions of Ukrainian governments have led it here? The fault of ineffective governments is rather big. However, there are many other sources of this problem. There is also the role of native lawmakers and foreign "advisors". As promoters of Post-Communist transformation were also taking into account the recommendations of International Financial Organizations (IFO) and leaders of partner countries in international business. Recommendation of these agents of influence were based on the neoliberal paradigm and provisions of the Washington Consensus. Even now, the economical and ideological theories of leaders, which are advocating "fundamental market liberalism" and functionaries of IFO's, make a determining influence on the selection of social and economic policy content in Ukraine. Undoubtedly, the influence of the MFO's was not destructive all the times (for instance, the case of financing the reforms of prosecution system and other law-enforsement bodies). Nevertheless, generally, they did not help in Ukraine's social-economic and technological modernization. Even vice versa. Only the resisting combination of failures in economical ideologies, unsuccessful of harmful influences of outside actors and egoistic short-termism of internal actors could bring Ukraine into a deepest transformational trap.

It should be mentioned, that the advocates of neoliberal paradigm of transformation in 90's strongly argued, that economic freedom (on the contrary to planning instruments) and the self-organizational ability of markets would irreversibly cause the transformation to the new society. However, they did not mention what kind of society they meant and about what quality of economy they were talking. Blindly believing in irreversible linearity of modernization and civilizational progress, peoples and governments of Post-Socialistic states "poetically" believed it should be the example of 1989's FRG or Sweden or ever the USA of the same 1980 year. For instance, the famous expert Sachs (1994) argued: "many problems in economy will be solved without any interference: markets will arise as soon as the bureaucrats from central planning will disappear" (p.74). Studying the Post-Social transformation of Russia, Aslund (1992) was optimistic in front of politicians and society: "No doubt, millions of working places will be created in Russia during the first year of freedom of entrepreneurship and free pricing" (p.90). We agree with Miuller and Pikel (2002), that "the enthusiasm previously based on the socialistic ideas, was turned to the market, promising to become not only the mechanism of effective allocation, but also the model of "freedom constitution", where the economic freedoms form the precondition for all others freedoms" (p.70).

The advocates of the Washington Consensus explain the failure of social and economic reforms in post-socialist countries by the harmful influence of corruption on the market mechanisms. However, corruption is only a part of sources-results of problems in post-communists reforms. The content of the chosen theoretical paradigm of social-economic transformation is a problem itself, as well as the choice of models for reforms.

We can assume with sorrow, that the political position of neoliberal doctrine about self-sustainment of market transformation from socialism to "highly-effective" economy under the influence of "curing price shocks" is still strong regardless all the harms of transformation trap. However, many known economists and managers gradually recognize the mistakenness of using the neoliberal paradigm in case of post-socialist transformations. "The invisible hand" of A.Smith is showing the wrong way in Ukraine, does not causing the self-movement to efficiency of entrepreneurship and market.

The question is what "self-movement mechanisms" should be used as a base for new paradigm of Ukraine's economic development under growing globalization? In what theories of economic growth and transformations should economists, politicians and businesspersons believe? Possibly, there is no universal and reliable mechanism of economic self-movement. Therefore, the problem of economic self-movement should be studied for every certain economy. The answers for the questions regarding the compatibility of motives-sources-regimes of self-movement will show what changes in social and business sectors will help to bring the economy of the state out of the transformational recession.

Thus, the search of organizational tools and self-organizational mechanisms for overcoming the long-lasting transformational crisis of post-socialist economy is a highly topical issue. The objectives of the study are: 1) genetic and algorithmic analysis of dysfunction of institutional base of Ukraine's business and economic system; 2) description of barriers for development of effective business and competition; 3) analysis of determinants causing imbalances in extended reproduction of assets in Ukraine.

Literature review on Post-Communist Reform and Economic Transformation. Classical and neoclassical theories thoroughly study the sources of economic dynamics and mechanisms for restoring economic balance at the scale of national economies. Walras, Robinson, Keynes, Hicks, Hansen, and Samuelson studied the question of sources for economic dynamics and mechanisms for reaching current "approximate" equilibrium. However, the findings of these scholars were oriented at solving problems of developed capitalism and unable to explain the long-lasting economic crisis in post-socialistic economy of Ukraine and show the way out from it. A.S. Hal'chyns'kyy, V. M. Heyets', S.V.Mochernyy, Yu.M. Pakhomov, V.R.Sidenko, O.I.Soskin, N.A.Tatarenko, V. P.Cherevan', A.A.Chukhno are among Ukrainian scholars who analyze evolution and functioning of models of Ukraine's socio-economic development. Their findings became highly valued for understanding the sense of economic changes in Ukraine. Nevertheless, projecting the concepts and logics of neoclassical economic models on problems of Ukrainian economy is not very effective. Also using the logics of "market fundamentalism" and liberal paradigm is even harmful for the economy of Ukraine. Therefore, scholars should develop economic mechanisms and strategic models for overcoming the transformational trap in a "wide scale".

The scientific and theoretical base of our study includes the provisions of neo institutional economic theory (North, 1990) and conception of autopoietic social systems (Luhmann, 1991). The problem of the optimal scale of functioning and influence of economic agents is studied in the works of developers of neo intuitionalist theory. Pejovich (1999), proves, that the intuitional order affects the functioning and types of economic organizations. We believe that accounting for the important reason of neo institutional economic theory, there is a chance to consider the self-organizational aspect: the targeted progressivity of composition institutes (institutional order) becomes source of economic movement. The progressive direction of growth of institutional space generates the activity environment of actions, practices and behavior. The institutional environment can form preconditions for spontaneous "creative genius" outburst of business actors and related actors of innovative process.

The theory of autopoietic social systems (Luhmann, 1991) shows how social environment supports self-organization of economic mechanisms by

institutionalizing certain processes, due to circulation of relevant actions and communications in the cyber-circle "enter – communicational and transformational materialization – exit".

Errou (1996) studies the influence of two aspects – time and state regulation – on the economic growth. In addition, he draws attention to a paradox: development depends both on how the past has influence on today and on future, and vice versa, how future "affects" the modern. We suggest the following specification of this message: future of the social-economic transformation partly depends on how the actors of transformation see this future. How they understand it, what practices and models of behavior they are using, how they are forming and deforming economic and political institutes. However, the process of transformation as a result of economic self-movement is rather complex: we will never know the results of every our step for sure unless we make it in reality.

Kornai (1998) suggests considering national economy as a unified complexly structured system. The following interdependent social-economic systems and subsystems of meso-, micro- and nano-economic levels are studied within this complexly structured economy of the country: branches, territories, corporations, certain citizens, public groups, and other valuable elements in economy. Every economic system or subsystem is a stage for interaction of politics, economics, techniques, culture, psychology, ideologies of certain scale, which are also being independent subsystems. Systemic institutes and systemic events are the basic subjects of studies within the systemic paradigm, while systemic dysfunctions are immanent features of every system (Kornai, 1998). These provisions are also mentioned in findings of Kleiner (2002, 2004).

Objectives, methods and methodology of research. We proceed from the following findings generalized from provisions of (Kornai, 1998) and Kleiner (2002, 2004). 1) Social-economic system and system of national economy, which are synchronically transforming from planned regulation to market, are a system-process. 2) It is a system-process of high complexity due to endogenous factors of evolution (self-movement). 3) Every system-structure dimension in such system-process evolutionary affects the topology and hierarchy of relation and sustainability of components and limits of their behavior. 4) The process dimension affects the conditions-factors of changing behavior and roles.

Grounding on these points, we will develop a methodology embracing such formats of the studied problems of evolution of economy, business, capital and capitalism: system of relations, system of economic processes, economic-institutional actions-activity-behavior, evolution of motives-schemes-algorithms of creation and expanded reproduction of assets. We use cause and effect steps (rows) of institutional changes (structural and genetic approach) for revealing the sense of economic relations, structural and functional approach studying the growth-decline mechanisms of entrepreneurship and amounts of assets. We use dialectical and trialectical

methodology tools, ideas and provisions of systemological methodology (Klir, 1987) to study post-communist transformations and for identification of the sense of notions, which are being system-creating for transformation ("Market", "Capital", "Capitalism", "Economics", "Society"). The "complexity" paradigm (Mainzer, 2007; Simon,1991) is used in study of Market-Capital-Capitalism triad and Society-Capitalism-Economy triad. The fact analysis method, comparative study and analysis of expert-index data systems is used for studying the actable (in-game) scheme of entrepreneurial, asset and capitalism development.

We also use the comparative analysis of the "growth fazes" to learn the sense of institutional changes in the country. We apparently and implicitly always use the fundamental points of neo institutionalism approach of North (1990). This concept defines the following developments of the "institute" notion: formal rules, i.e. legislation, contracts; informal limitations, i.e. norms of traditions; enforcement tools, i.e. courts and law enforcement system. We study formal institutes from the prism of legal acts in the private ownership sphere, privatization, competition, monopoly, freedom of business.

It is much more difficult to study informal sector at the macro scale, than formal sector of institutional 'society-economics-politics' triad. This is due to the large volumes of data, surveys, the collection of expert opinions, and analysis of statistical information over long intervals of time. Statistical and analytical data of Ukrainian and international analytical and monitoring organizations on the state of the institutional environment in Ukraine were used to study the evolution of informal institutions, including the comparison with other countries. These were the statistical reports of the European Court of Human Rights, annual reports by the World Economic Forum, Corruption Perceptions Index 2014, Global Competitiveness Reports and The Worldwide Governance Indicators (WGI), project reports by World Bank, Reports "Doing Business", Economic freedom rank by Heritage Foundation, Nations in Transit Reports by Freedom House, The Rule of Law Index by World Justice Project, The Bertelsmann Stiftung's Transformation Index.

We study the efficiency of the enforcement system through the level of confidence in national law-enforcement bodies and courts from the side of population. Research of the Razumkov Center, Transparency International Ukraine, data of the European Court of Human Rights were used as the sources for this purpose.

The first part of the work is devoted to the results of studying institutions and institutional reforms. The second part of the paper highlights the consequences of the institutional structure that has been formed in Ukraine. The authors also tried to answer the question whether Ukraine has reached the basic goals of the capitalistic level of social production efficiency which is needed today to be able to counter the pressure of global competition.

Research findings

Part 1. Dynamics of forming the components of institutional structure and institutional setting of market in Ukraine. More than 25 years have passed since the official refusal of the society and the state leadership of the "Ukrainian SSR-Ukraine" from the construction of the socialist economy. In 1990-1991, a new phase was legitimately named as transitional, transit, transformational. However, it is obvious now that this phase got too long and did not result in the goals, which were set in early 90's. There may be many reasons for this: unqualified defining and selection of development goals; unreachable goals; incorrect projects of reaching the goals; incorrectly identified determinants of societal and economic evolution; the falsification of goals and tools for their achieving went out of focus; persons empowered in economy and politics did not meet the challenges of time.

Kornai (1998) calls the crisis state of economy of post-communist states as a transformational recession. We call it a transformational trap. It must be emphasized that the exit from the transformational recession is hampered by the inverse nature of the motives, needs and tasks of changing the type of industrial economy in Ukraine. Therefore, there is a trap. Such complexity of the situation indicates the complexity of the tasks of modernizing the economic system. We will try to solve the nodes of complexity using the method of decomposition.

Formal institutes in the form of legal norms and acts are more simple subjects for research. What are the major changes in this area? Have they really happened? The changes of "genetic codes" of the legal institutes in economic sphere are as follows. The formal "people's power" for the means of production in the Ukrainian SSR was defined in the Constitution of the USSR / USSR and in the program documents of the CPSU / CPU. The cancellation of the influence of the basic institutions of the political system of the CPSU / CPU by the new laws, both as cancellation of the state system of the USSR / USSR was aimed at denying formally the social (actually state) ownership on the means of production. Institutionalization of private property became the focus of the new doctrine of "non-socialist" statehood. This is logical, but as they say, "the devil is in the details" of the process of differentiation of political declarations and economic interests of the actors of the process.

In the context of the civilization-geopolitical trend of constructing a global democratic political system, the transformation took place of the Ukrainian SSR into Ukraine as a sovereign state of law. The new market structure of the economy was supposed to be in line with the new socio-organizational relations and social order. Private ownership and free entrepreneurship had to become the legal background of the new organization of social order. Finally and formally, this has happened: today the Constitution of Ukraine (Art.41) and the relevant group of laws serve as a legal base of private ownership in Ukraine. However, the path

to the legal institutionalization of the private ownership became rather complicated and ineffective for stimulation of economic growth of businesses. Let us remind that the formalized content of the private property institute is determined by the following Laws of Ukraine adopted in 1991: "On Property", "On Business Associations", "On Enterprises in the Ukrainian SSR" (hereinafter "On Enterprises in Ukraine"), "On Peasant (Farmers') Economy".

The right to carry our entrepreneurial activities is also stipulated in Article 42 of the Constitution of Ukraine. The same article provides for state protection of competition in entrepreneurial activity, prevention of abusive monopolism, and protection of consumer rights. Actually, freedom of business (and not just the right for it) is declared in the Commercial Code and the Civil Code of Ukraine (2003). However, both like in case of "introducing" the private ownership right before the adoption of the Constitution of Ukraine, the aspects of operating business and "declaring" the freedom of business were already outlined in the Resolution of the Council of Ministers "On measures for the creation and development of small enterprises" (1990), in the Concept of the transition of the Ukrainian SSR to a market economy (1990) and in the Law of Ukraine "On Entrepreneurship" (1991).

Together with the creation of private property and entrepreneurship institutions in Ukraine, the formation of "antitrust" institutional instruments of the state took place. It was supposed, that they were highly important at that moment for shaping the bases of the market type of economic activity (the Resolution of the Council of Ministers of USSR "On Measures of |Demonopolization of |National Economy" (1990), The Law of USSR "On the Limitation of Monopolistic Activity in the USSR" (1991), the Law of Ukraine "On Limiting Monopolies and Preventing Unfair Competition in Entrepreneurial Activity" (1992), Article 42 of the Constitution of Ukraine, the Law of Ukraine "On Protection of Economic Competition" (2002). However, the competition institution has not become effectively working.

Some of the mentioned legal acts are still working. A large number of acts, especially under-law ones, were approved, modified and cancelled. However, the question arises: did they contribute to the construction of a market economy with a "naturally built" competitive relationship and a "natural need" for improving the efficiency of capital? Firstly, legal experts (Poleshko, 2010, p. 324; Yamkova, 2013), unfortunately, argue that there are no bodies and methods in Ukraine, which could assess the efficiency of legislation, the most important criteria of the legal act. The laws are adopted, but afterwards the "feedback" is not being studied, nobody learns whether the goal of its adoption was reached or not. There are no methodologies for assessing how far this goal was adequate to the means that were spent on the adoption and implementation of this law, as well as how it all relates to the result. Secondly, one of the favorite saying of Ukrainian

entrepreneurs is that "any laws are good, but it is more important, that all should adhere to them", highlights the role of informal institutions and the system of law-enforcement in the country.

The development of new institutional frames in ownership, entrepreneurship and competition induced the process of reproduction of private ownership-capital-value. This triple process is located at bordering territory between formal and informal institutes. Actually, a legalization of the rights of use, disposal and possession has happened for people who are close to power. As a result, the mechanism for generating schemes of non-market tools of the redistribution of national wealth was formed. The "Ukrainian" formal-informal post-socialist private property institution, and the privatization mechanisms were shaped under conditions of confrontation between the systems of social and personal rationalities.

The legislation within which the "basic" privatization of the state sector and state-owned property has happened, were the Laws of Ukraine on privatization of state-owned enterprises (1992 p.) (except for lands, housing and social and cultural objects); small state-owned enterprises (small privatization) (1992 p.); state housing (1992 p.); property of agro-industrial complex (1996 p.); enterprises under the rule of the Ministry of Defense of Ukraine (2000 p.). With aim to "promote" the effective privatization in Ukraine the Fund of the State Property of Ukraine was founded (FSPU) in August of 1991. Planning and priority of privatization processes were supposed to be regulated by the annual state privatization programs. However, the process led to the redistribution of national capital for the "elected" through the mechanisms of "corruption voting" of the authorities. It is no accident that two of the former FSPU leaders have died under mysterious circumstances. First, the programs of privatization were approved by the Resolutions of the Verkhovna Rada of Ukraine (from July, 7, 1992 and January, 26,1994), then by the Ordinance of the President of Ukraine (1995, 1996, 1999), The Laws of Ukraine (1997, 1998, 2000, 2012). These programs mostly had political goals and contained formal slogans. Therefore, the needed goals for the state were rarely substantiated in these programs, rather than goals needed for implementation of the interests of certain persons.

There were some laws were adopted, which regulated the privatization of certain state enterprises like OJSE "Ukrtelekom" (2000) and OJSE "Mariupol Iron and Steel Works named after Ilyich" (2000 p.).

Acquisition through tax collateral procedures became an extremely common way of alienating state-owned property. Under such a scheme, the most liquid assets of enterprises like buildings, equipment, and raw materials were introduced into the tax pledge, and then sold at the understated prices. The example of this point is the case of JSE "Derzhinvest Ukrainy", which was liquidated according to the results of inspections of the Accounting Chamber of Ukraine. The mentioned company, bypassing the FSPU, transferred some high-liquidity stocks

of state-owned enterprises OJSE "Kyiv River Port", SIC "Halychyna", "Naftokhimik Prykarpattya", "Kharkiv Bearing Plant", "Kyiv Institute UkrGasProject", according to share-pledge agreement, to business entities, including non-residents (Accounting Chamber of Ukraine, 2003). In such way, the formal and informal institutes were gradually replaced by schemes that changed the architecture of the institutions themselves.

More than 130 thousands of state- and community-owned objects have changed their ownership type due to this poor quality architecture of the private ownership institution (Figure 1). In general, the peak of privatization in Ukraine was in 1996. And while the start of privatization covered large and medium-sized enterprises, the main share of enterprises of trade, service and catering was privatized during the period of the most mass privatization from 1995 to 1998.

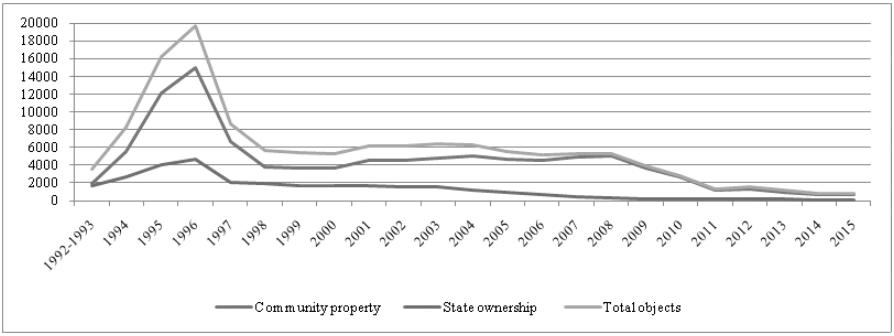

Figure 1. Number of objects that have changed the form of ownership in Ukraine, units (Accounting Chamber of Uktaine, 2003; State Property Fund of Ukraine, 2003,2005,2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016)

Formally, privatization was aimed at a noble goal: eliminating the monopoly of the state capital, providing structural changes in the economy, improving the efficiency of the non-state sector of the economy, forming an effective owner and investor. All this together could form important conditions for formation of the background of market environment. Incomes to the state budget could become extra bonus, as industrial enterprises, which were sold, cost huge amount of money. However, in reality, the incomes to the state budget were very low and still are. Despite the large number of privatized objects, the earnings from them did not exceed 20% of the revenues of the State Budget of Ukraine. Interestingly, the first approximation to this figure occurred in 1993, when privatization was only gaining momentum. The reason was the small budget of Ukraine. The same thing happened for the second time in 2005, when the Government

surprisingly introduced moratorium of privatization. The reason for such huge income was the sale of stocks of OJSE "Kryvorizhstal" to the transnational metal trader "Mittal Steel Company N.B" for 24, 2 billion UAH. This act showed what colossal sums of money could be earned for state enterprises.

The institutional structure of privatization, created at the first decade of Ukraine's independence was supposed to contribute to the creation of a multi-market economy in Ukraine. However, the ideologists of 'market transformations' forgot to emphasize, that market in the industrial era arises only co-evolutionary with the developed capitalist mode of production. This path, in the face of inadequately introduced institution of private property, have led to the domination of oligarchy in the economy and the creation of ersatz-capitalism in Ukraine. We believe that only conjunction of formal and informal institutions of private ownership and entrepreneurship with business practice provides for efficiency of the modern capitalistic system. Therefore, it is important to assess both formal and informal institutes of Ukraine's politics, economy and business. With this aim, we have analyzed the data of the seven international rankings of countries as for their social, political and economic development for the period from 2006 to 2015-2016. As a result, the elements of institutional environment were differentiated according to four components: legal system and legislation; policy and public administration; economic sphere; social transformations. Depending on the changes in the values of indicators of the studied indices and changes of Ukraine's position in ratings, three possible variants of changes in institutional environment were defined: positive changes, negative changes, no changes (Table 1).

Proceeding from the analysis of expert data, we suggest the following conclusions about the dynamics of efficiency-inefficiency of informal institutes in the focus of efficiency of the national economy, by components.

Legal system and legislation. The only progress was in the sphere of fundamental rights protection. The rest of components degraded. The worst decrease happened in the sphere of "independence" of courts: according to the Index of Global Competitiveness, Ukraine has lost 30 positions by this indicator. The worst decrease occurred between 2008 and 2010. The rest of components are characterized by a minor decrease.

Policy and public administration. The data show improvement of many important elements of institutional environment. The growth of public trust in the policies, transparency and better coordination in governance are the most positive changes. The greatest improvement was seen in the measure of regulatory influence of the state, especially after the recent revolutionary events. Nevertheless, the struggle with the favoritism in governmental decisions and with the monopoly of clans for the use of resources has failed; the party system was not improved. The increase in reliability of public services is observed since 2016. Almost to the extent that the burden of state regulation has diminished,

the waste of government spending has increased. The level of political stability has fallen sharply.

Table 1

Dynamics of changes in the institutional environment of Ukraine in 2006-2015 / 2016 years

Positive changes	Negative changes	No changes
Legal system and legislation		
Fundamental Rights	Rule of Law	Associations / assembly rights
	Regulatory Quality	Criminal Justice
	Judicial independence	
	Civil rights and civil Justice	
	Intellectual property protection	
Policy and public administration		
Public trust of politicians	Favoritism in decisions of government officials	Local Democratic Governance
Burden of government regulation	Government spending	Separation of powers
Basic administrative structures	Reliability of police services	
Policy coordination	National Democratic Governance	
Open Government	Monopoly on the use of force	
	Performance of democratic institutions	
	Approval of democracy	
	Party system	
	Political Stability and Absence of Violence	
Economic sphere		
Corporate ethics	Strength of auditing and reporting standards	Resolving insolvency
Starting a business	Enforcing contracts	Private enterprise
Registering property	Protecting minority investors	
Dealing with construction permits		
Social transformations		
Freedom of expression	No interference of religious dogmas	
Conflict intensity	Independent Media	
	Civil society traditions	
	Organized crime	
	Order and Security	

End of Table 1

Positive changes	Negative changes	No changes
Components, which have doubtful dynamics		
Property Rights (The Bertelsmann Stiftung's Transformation Index)	**Property Rights (**Economic freedom rank; Global Competitiveness Index)	
	Electoral Process (Nations in Transit Ratings)	**Electoral Process (**The Bertelsmann Stiftung's Transformation Index)
Corruption (Global Competitiveness index, Rule of Law Index)	**Corruption** (Economic freedom rank, Nations in Transit Ratings)	
	Anti-corruption policy (Worldwide Governance Indicators)	**Anti-corruption policy** (The Bertelsmann Stiftung's Transformation Index)

Developed by authors on a basis of: Heritage Foundation (2017), Freedom House (2003, 2006, 2008, 20123, 2015, 2016), The Bertelsmann Stiftung's Transformation Index, The World Justice Project (2013, 2015, 2016), World Bank (2008, 2013, 2016), World economic forum (2007, 2012, 2016, 2017), The Worldwide Governance Indicators project (2017)

Economic sphere. Most of the institutes in economic sphere showed high improvement. Ukraine has moved up for 82 positions (40 of them in 2016) in ranking on the ease of registration of enterprises. According to the Doing Business data (World Bank, 2008, 2013, 2016), it will take not more than 7 days and four procedures to register the new enterprise in Ukraine in 2016. The cost of starting business is about 0.6% from the average per capita income (in fact this refers only to the simplest business). To compare, in 2009 the number of procedures was 10, and the time needed for registration – 27 days, the cost was 5.5% from the per capita income.

It is notable, that despite the improvement in corporate ethics, keeping the contractual obligations has deteriorated especially in the period between 2012 and 2015. Insolvency procedures remained unchanged. However, this subindex in 'Doing Business' rating of the World Bank (2013, 2016) is the worst for Ukraine.

Social transformations. There was a significant decline in the intensity of social, ethic and religion-related conflicts. The freedom of expressions of citizens, organizations and mass media has improved to a lesser degree. At the same time, the independence of the mass media become more questionable. The increase happened of the influence of religion on political institutes and legal order. The significant increase of organized crime and lack of improvements in the sphere of order and security is especially threating to the society.

As it is shown in the Table 1, more than a half of institutional changes (53.8%) showed negative tendencies. 30.8% components of institutional environment had positive changes, while 15.4% didn't show any changes.

In addition, authors have defined the components, which have doubtful dynamics in different studies. These include ownership rights protection, changes in election process, corruption and fight against it. As to the electoral process, the Bertelsmann Stiftung's Transformation Index showed equal data in 2006 and 2016. However, there was a drop of values during this period, which was overcome only in 2016. Thus, we consider that there is a positive dynamics of holding free and fair elections. However, the problem is that the selection of parties is too limited and manipulative.

The same thing is with corruption. The rankings, which were showing deterioration over the period of 2006-2016, are representing positive dynamics in 2015 and 2016. Therefore, we can conclude, that there are some positive changes in corruption level and fight against it now.

But the ambiguity of the evaluation of Ukrainian "capitalist" informal institutions lies primarily in the discrepancy between the content of the institutions and the form: the meaning of "Euro-Atlantic" economic consciousness, on which the expert rating assessments are based, do not correspond to the Asian feudal (Horde) content of economic consciousness and economic rationality. This is also proved by the fact, that according to the results of "National integrity system assessment Ukraine-2015", corruption remains a systemic problem at all the levels of state authorities. The level of tolerance for corruption in Ukrainian society has not seriously declined since 2005: the level of the perception of corruption in 2005 was 2.6 points, in 2007 – 2.7 points, in 2009 – 2.2 points, in 2012 – 26 points, in 2014 – 25 points, in 2015 – 27 points (according to a scale, where 0 points refers to highly corrupt, 10 points (100 points after 2011) – corruption-free) (Transparency International Ukraine, 2016).

Almost a third of Ukrainian citizens, like the apologists of "Asian feudalism", still believe that corruption can be justified, and consider the bribe as the easiest way to solve the problem in relations with different state agencies. Ukrainians consider courts (66%) the most corrupted sphere, then followed by: law-enforcement (64%), state offices (56%), healthcare (54%), Parliament (53%), political parties (45%), education (43%), business (36%), military (28%), media (22%), religious institutions (21%), NGO's (20%) (Transparency International Ukraine, 2016).

The elements of corruption are especially seen in the state sector. At this, corruption has specific consequences in the allocation of budget spending. In 2015 the results of controlling measures initiated by the Accounting Chamber of Ukraine, revealed various kinds of violations and abuses in the budget sphere in the amount of UAH 22.7 billion, which comprises 4,24% of the revenues of the State Budget of Ukraine (Accounting Chamber of Ukraine, 2016). The main share of violations referred to the state revenues administration. And generally, ineffective allocation of budget costs prevailed within 2007-2015 years period.

Notable that the number of uncompetitive sales procedures declined during the last 4 years, that proves the reforms of the system. The share of uncompetitive sales procedures (with only one participant) was: 35% in 2012, 43.7% in 2013, 46% in 2014, 39.8% in the first 9 months of 2015 (Accounting Chamber of Ukraine, 2015, 2016). The largest share of uncompetitive procedures (85.5 % as to the quantity and 65.44% as to the price of contracts) is the share of sales in utilities sector (gas, electricity, water supply) and postal services, markets of which are traditionally being monopolist (Ministry of Economic Development and Trade of Ukraine, 2016). Nevertheless, despite some improvements in the field of public procurement, the legal relationship in this area does not correspond to the principles of competition and transparency, even according to official conclusion of the Accounting Chamber.

The Table 1 shows main elements of institutional environment, both formal and informal. The components of enforcement system were defined into a separate group: judiciary, protection of rights. At the same time, the law-enforcement system is primarily based on the trust to judiciary and police (Table 2).

Table 2

Level of enforcement authorities trust by population in Ukraine, %
(Razumkov Centre, 2017)

Рік	Органи внутрішніх справ, міліція				Діяльність суду			
	Повністю підтримую	Підтримую окремі заходи	Не підтримую	Важко відповісти	Повністю підтримую	Підтримую окремі заходи	Не підтримую	Важко відповісти
2015	2,2	22,4	69,2	6,1	1,1	9,5	81,4	8,1
2013	9.2	30.3	53.9	6.6	4.7	25.4	59.8	10.1
2012	5.5	32.4	54	8.1	5.5	28.3	55.5	10.8
2009	5.3	31.3	55.9	7.5	3.9	24.3	62.1	9.6
2008	6.1	31.7	51.2	11.1	2.6	20.4	65.1	12
2007	11.5	32	43.6	12.9	7.8	29.6	45.9	16.7
2006	8.7	32.3	44	14.9	6.7	29.2	45	19.2
2005	12.2	35	36.3	16.4	6.5	30.2	42.1	21.3

The study by the Razumkov Centre shows a sustainable decline of the level trust to the police and courts during the last 10 years. At this, the trust to courts decreased more. Positive fact is that the share of people, who cannot decide about their relation to these bodies, has dropped. In general, according to the Razumkov Centre, the Military Forces of Ukraine, the National Guard, the church, NGO's and volunteering organizations are the most trusted in 2016. The level of trust to all branches of state powers including regional, the National Bank and political parties, is extremely low.

The data of the European Court of Human Rights can serve as additional information for the analysis of efficiency and justice of law-enforcement tools. At the end of 2015 13,850 appeals have been submitted to the Court against the country of Ukraine (21.4% of all appeals), which puts Ukraine in first place on this indicator. Next goes Russia with 14.2% of appeals, Turkey (13.0%) and Italy 11.6% (European Court of Human Rights, January 2016). In terms of the number of court sentences in 1959-2010, Ukraine ranks 5th (1053 sentences). Among these decisions, the bulk of cases are related to the following issues: the right to a fair trial, property protection, litigation, the right to liberty and protection, and the right to an effective remedy (European Court of Human Rights, 2015).

In general, the institutional element of the analyzed Global Competitiveness Index is the weakest in the case of Ukraine. According to the Nations in Transit Ratings and Averaged Scores (Freedom House, 2015, 2016) Ukraine refers to transitional governments and hybrid regimes. The conclusion of The Bertelsmann Stiftung's Transformation Index (2017) shows, that Ukraine has defective democracy, functional flaws in market economy and the average level of managerial efficiency.

Thus, we can assume that the disconnection of capital institutions, institutions of capitalism and institutions of market both conceptually and practically is a main barrier for the capital efficiency in Ukraine and growth of its economy. As a substitute, institutions of power-enforcement and institutions the power of money become altered. Moreover, money are altered with the capital corruptly and inefficiently. At forming of state-nations in the era of natural development of capitalism, the national bourgeoisie was patriotic – it financed the consolidation of the "political economy" of its state. Unlike, the Ukrainian cosmopolitan bourgeoisie is most often anti-patriotic, keeping financial wealth in offshores, avoiding compulsory payments for education, roads, infrastructure as a whole, education and defense.

Part 2. Transformation of the model of Ukraine's capitalism on the base of institutional changes and efficiency of the national economy

The set of institutional changes in Ukraine have formed a social-economic and political structure, which is called "fellow sponsorship", "clan", and "oligarchic" capitalism. However the question arises about what features it has and how these features are reflecting in the process of development of the country. Normally, it is expected that capitalism and market economy should provide innovative processes and increase of labor productivity level through the mechanism of competition and necessity of effective functioning. At this, innovations and new knowledge as a tool are able to increase the country's competitiveness at the global markets. This might be important for Ukraine as a developing country. However, this does not work. For assessment of innovation level and comparison of innovative efforts of different states the indicator of

R&D/GDP intensity or the share of expenditure for R&D in the country's GDP (Table 3) are used.

Table 3

The share of expenditure for scientific research and technological development in GDP

(Organisation for Economic Co-operation and Development.Stat., 2017; State Statistics Service of Ukraine, 2017)

Country Name	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Korea	2,18	2,34	2,27	2,35	2,53	2,63	2,83	3,00	3,12	3,29	3,47	3,74	4,03	4,15	4,29
Israel	3,93	4,19	4,13	3,90	3,88	4,04	4,13	4,41	4,33	4,12	3,93	4,01	4,13	4,09	4,11
United States	2,62	2,64	2,55	2,55	2,49	2,51	2,55	2,63	2,77	2,82	2,74	2,76	2,70	2,74	..
OECD - Total	2,14	2,18	2,15	2,15	2,13	2,16	2,19	2,22	2,29	2,34	2,30	2,33	2,34	2,37	2,38
Czech Republic	1,12	1,11	1,10	1,15	1,15	1,17	1,23	1,31	1,24	1,30	1,34	1,56	1,79	1,91	2,00
European Union (28 countries)	1,68	1,70	1,71	1,70	1,67	1,67	1,69	1,70	1,77	1,84	1,84	1,88	1,92	1,93	1,95
Russia	1,05	1,18	1,25	1,29	1,15	1,07	1,07	1,12	1,04	1,25	1,13	1,09	1,13	1,13	1,19
Poland	0,64	0,62	0,56	0,54	0,56	0,57	0,55	0,56	0,60	0,67	0,72	0,75	0,88	0,87	0,94
Ukraine	*1,16*	*1,11*	*1,11*	*1,24*	*1,19*	*1,09*	*0,98*	*0,93*	*0,90*	*0,95*	*0,90*	*0,79*	*0,80*	*0,80*	*0,69*

After analyzing of the share of R&D in Ukraine's GDP for 2000-2014, it becomes obvious that there is a tendency of decrease in the importance of spending for R&D. In 2000, the level of financing R&D was close to that of the EU and higher than that of some European states and Russia. While in 2000 the share of R&D in GDP was 1.2%, then it was twice less – 0.69% in 2014, being lower than the same indicator of Russia. These indicators are very low comparing to the same of the OECD countries and Ukraine lags colossally from the world leaders of scientific and technical developments. The level of financing science is below critical, and this tendency in future may have negative effect on the economic growth. The specific features of financing science in Ukraine are also important. The state budget remains one of the major sources of financing R&D (Table 4).

Table 4

Sources of funding of scientific research and technological development in Ukraine, % *(State Statistics Service of Ukraine, 2017)*

Source	1995	2000	2005	2015
State and local budgets	37,6	30,0	33,2	35,1
The funds of domestic customers	35,8	38,4	32,6	20,1
The funds of foreign customers	15,6	23,3	24,4	19,8
Other sources	11,0	8,3	9,8	25,0

Traditionally, more than 1/3 of costs of R&D in Ukraine is financed by the state; about 30% is financed by the private sector and more than 15% – by foreign sources. |In general, the share of the state sources in financing R&D of the state is predominant, while private sector is only second, though its role gradually increases. To compare, the average share of private spending for R&D in the EU countries in 2003-2013 according to Eurostat, was more than a half (55.0% in 2013), the share of the state was about one third (32.7% in 2013), while only 8-10% of R&D costs were financed by foreign sources.

Unfortunately, there is such a situation in Ukraine, that domestic entrepreneurs do not realize the need to invest their own funds in research and development and their commercialization. Starting from early 2000's the innovative production and its sales decrease (Figure 2).

The level of implementation of technological innovations in production is still low. Totally, the share of industrial enterprises, which are implementing innovations, during the studied period, reached the 15% level only in 2015. Very often, this category of enterprises includes entities with foreign investments. The showed data proved that the state should create institutions, which are able to influence of innovation processes, to act as their initiator, stimulate enterprises to invest in science.

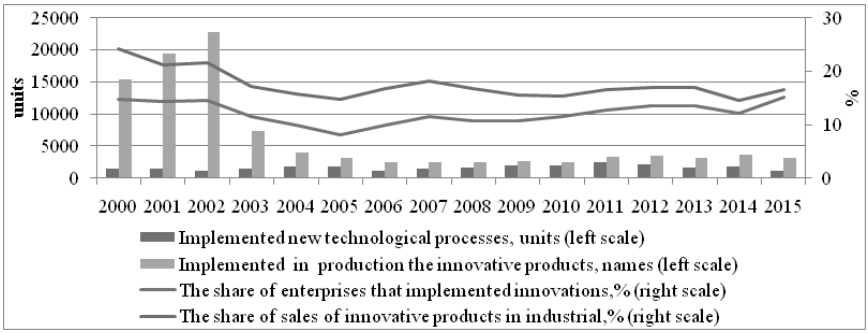

Figure 2. Implementation of innovations in industrial enterprises (State Statistics Service of Ukraine, 2017)

The labor productivity is one of the key indicators reflecting efficiency of labor costs in production or services sector. It is the indicator of the efficiency of capitalistic system of the country at the same time. Gross domestic product (GDP) per person employed (PPP) is the indicator that enables to compare the labor productivity of different countries. Unfortunately, Ukraine's level of labor productivity is much lower comparing to economically developed countries and to countries of the post-Soviet area (Table 5).

Table 5

The level of labor productivity in Ukraine and some countries, ths. USD / person *(The World Bank, 2017)*

Country Name	1991	1992	1993	1994	1995	2000	2005	2010	2014
Macao SAR, China (First place, 2014)	89,59	97,70	100,27	103,95	103,61	85,72	122,82	163,40	231,32
United States	75,72	78,02	79,00	80,17	80,83	91,08	100,62	106,15	109,31
France	75,73	77,18	77,20	79,80	80,21	87,20	88,29	88,32	89,70
Germany	67,04	69,25	69,50	71,58	72,33	77,95	81,51	81,87	84,05
Japan	59,85	59,55	59,44	59,88	60,97	64,02	68,47	69,83	72,52
Slovenia	41,57	38,96	41,77	39,49	39,92	49,20	55,37	59,11	61,02
Hungary	39,19	36,94	39,04	40,82	41,83	46,34	56,09	57,45	56,30
Czech Republic	34,28	34,16	34,22	34,87	36,80	42,33	51,25	56,92	55,94
Lithuania	34,55	25,71	22,54	21,79	22,76	29,64	42,99	51,19	54,30
Poland	22,07	23,31	24,42	26,11	27,92	37,61	44,28	48,87	53,74
Estonia	27,58	21,43	19,83	20,58	22,89	35,15	46,48	50,44	53,12
Latvia	26,01	18,21	17,94	18,73	19,55	29,08	40,43	45,43	48,65
Russian Federation	40,86	32,75	30,98	28,64	27,80	29,67	37,05	43,40	46,90
Belarus	16,58	15,18	14,22	12,71	11,55	16,46	24,37	35,71	39,15
Azerbaijan	21,26	16,50	12,39	9,71	8,34	11,35	17,92	33,73	34,89
China	2,92	3,12	3,52	3,96	4,44	6,50	9,87	16,37	21,63
Paraguay	15,14	14,69	15,26	15,45	15,53	15,30	14,14	16,01	17,44
Ukraine	*21,18*	*19,38*	*16,92*	*12,85*	*11,19*	*11,40*	*15,82*	*16,88*	*17,16*
Georgia	13,24	7,24	5,19	4,73	5,00	6,89	10,29	13,64	16,29
India	4,91	5,06	5,18	5,36	5,68	6,98	8,45	12,42	14,68
Central African Republic (Last place, 2014)	1,84	1,68	1,64	1,67	1,75	1,67	1,67	2,07	1,31

After gaining independence, the level of labor productivity in Ukraine was close to the post-socialist countries, including central and eastern Europe. However, by 2014, it dropped 1.23 times and is now roughly at Paraguay level. The greatest dropdown was in 1992-1993, while still there is no sustainable tendency to its increase. Today Ukraine's indicator is 13 times less than this of the leader Macao, 6 times less than the level of USA, 3 times than of Czech Republic and 2.7 times less than the productivity level of Russia. The current situation is caused by the disadvantages of institutional background of economic processes at the labor market. Other organizational and economic reasons are also seen, and the most substantial of them are:

- Wage level. Thus in 2014 the gross average monthly wage was 292.3 of US dollars. To compare, the wage level is 16.4 higher in the USA, 13.6 times

higher in France, 3.5 times in Hungary and 3.1 higher in Latvia (United Nations Economic Commission for Europe, 2017).

- The critical state of capital assets. The depreciation level of fixed assets was 43.7% in 2000, 60.1% in 2015 (State Statistics Service of Ukraine).

- High level of economic shadowing, which is 47% from the amount of official GDP in early 2015 (Ministry of Economic Development and Trade of Ukraine, 2015).

- Low innovation capacity of the economy, the level of which was described above.

However, both ineffective labor organization, especially at state enterprises, and ineffective use of human capital, absence or real restructuration of economy, absence of the institution of competition are barriers to economic growth.

Development of competition as the fundamental institution of capitalism was not really achieved for the years of independence. It is not a matter of perfect competition, not even an effective competition between agent actors. The matter is the ersatz-institutions have taken the place of the institution of competition as the base for reproduction of the dynamic equilibrium at labor, capital and money markets.

In the course of privatization on the institutional base, the following has happened:

- Declaration and real distortion of the private ownership institution;

- Development of a formally non-state sector of production on the basis of declaring "prohibition" of the state monopoly on the production by means of "anti-monopolization";

- Concentration of ownership-disposal-use rights through the launch of the cascade of privatization pyramids.

As it is shown on Figure 1, privatization has fallen now as a possible way for sanitation of the state sector and increasing its efficiency. The most possible explanation is that all the objects, that might be interesting for privatization, have already been privatized. Others, which remained state-owned, serve as sources of super-profits for their management and persons affiliated to authorities despite the artificial loss making (for example, spirits production).

However, some structural changes in ownership have happened in the process (Table 6).

As we see, after the privatization has been completed, the state sector has ceased to play a strategic role in the development of the Ukrainian economy. More of this, despite all the problems of the Ukrainian model of privatization, the private sector, being more effective than the state one, provided a graduate exit of Ukraine from the crisis in the late 90's. However, the problem of monopoly still exists: instead of the monopoly of state enterprises and "red directors", we are having a monopoly of republican, regional and local "oligarchs". There is a

"nesting doll" of monopolies, which is further destroying the competitive market environment. Therefore, the economy of the country has entered into a new spiral of transformational recession.

Table 6

Share of public sector entities in the economy of Ukraine,%
(Ministry of Economic Development and Trade of Ukraine, 2017; State Statistics Service of Ukraine)

Indicator	1992*	2000	2005	2015
The share in the number of entities	81,8	14,0	1,5	0,6
The share of net income from sales of products (goods and services)	-	-	12,7	11,4
The share in the average value of fixed and current assets	78,0	54,5	23,5	19,4
The share in the number of employees	70,4	48,9	21,0	15,8
The share in capital investments	77,8	51,1	-	9,3

* Data on state-owned enterprises

Despite the fact that the "total" state monopoly for economic activity has been destroyed. However, in many branches, sectors of economy or groups of enterprises the monopolistic status of the state owner became a monopoly of the private one. There was a merger of political power and business, which created a specific "socialist-feudal" budget-distributive form of monopoly. In addition, because of the weakness of motivation of the three above-mentioned specially formed Ukrainian political-economic institutions (institution of antimonopoly regulator, private ownership institution, and institution of entrepreneurship) we observe the increase of monopolistic tendencies in the economy (Table 7).

Table 7

Structural preconditions of competition in Ukraine (shares of markets with different levels of competition in the total sales) %
(Antimonopoly Committee of Ukraine, 2016)

Market type	2001	2004	2007	2010	2013	2014	2015
Markets with competitive structure	53,9	54,3	53,1	43,8	45,7	47,5	42,7
Oligopolistic markets (the share of the three largest enterprises is more than 50%)	11,6	15,3	14,4	12,5	15,9	15,4	16,7
Markets with signs of single dominance (the share of the largest enterprise is more than 35%)	22,7	19,9	25,8	30,7	25,4	25,4	30,8
Monopolized markets (the share of the largest enterprise is more than 90%)	11,8	10,5	6,7	8,5	11,8	11,8	9,8

The analysis of changes in the competitive environment at the markets of Ukraine shows a decline in the level of competition in the economy since the outburst of the global economic crisis of 2008. At the same time, if by 2013 there was an expansion of oligopolistic markets in which competition under certain conditions was possible, then from 2013 there will be a gradual growth of market shares with signs of individual dominance or monopolized markets where competition is virtually eliminated. The big business owns, operates and uses the main part of the national wealth, which is needed for economic functioning. Traditionally, only the markets of the agricultural production and partially metallurgy are oligopoly competitive in the segment of big businesses. On the contrary, the high level of monopolism is the feature of energetics (high-voltage networks, central dispatching office, regional offices), gas supply, communications (telephone, mail service), transport (railway, airlines, pipelene). According to the Antimonopoly Committee of Ukraine, the most traditional (48% in 2015) breach of legislation on the protection of economic competition was abusing a dominant (monopoly) position, first of all, abuse of the price character.

Thus, the actual data show that the institution of competition is still underdeveloped both at basic for social and economic development Ukraine demand markets and at technologically modern supply markets. Gradually this causes the collapse of the internal national market at a whole. The most striking example of the "anticapitalist" state of the economy of Ukraine in this case is the fact that in 2016 about half of the population (7 million families) had to use subsidies to pay for utilities.

Conclusions. As a result of the formation of a legally and morally weak system of private property institutions, there happened an unnatural "anti-capitalist" separation of the level of benefits and responsibilities for the right to use private property, the right to dispose of property, the right to use property. As a result, self-organizing sources of capital efficiency growth haven't been formed in Ukraine. The existing institutions of entrepreneurship did not become the self-organizational sources of effective competition. The Ukrainian institutions of entrepreneurship (formal and informal) have not become the precondition for producing effective market information and stimulation of economic growth to new, higher levels of spontaneous market equilibrium.

The institutions of demonopolization and privatization (in the form of voucher privatization) have not brought the overall access of resources for potentially enterprising people that is necessary for effective market development. This ceased to reach the main objective of qualified denationalization with the aim of developing the market of effective capital. This caused the slowdown and distortion in the process of forming the socially important private ownership institution in the spirit of modern socially oriented "people's capitalism". Therefore, the "antimonopolistic" institutional tools, which are necessary for the market, are still used according to the principle of "selective justice".

Due to implementation of such ersatz-market institutions, the specific economic and political caste of "feudal- bourgeoisie" has been formed. The absence of effective bankruptcy mechanisms for the case of ineffectiveness of business causes self-closure on the empowered caste, breaking of the bases of competition, anti-socialization of businesspersons, degrading of social responsibilities of business. There is a complete degradation of the mechanisms of socio-economic lifts for the younger generation within the country. This causes human capital outflow into developed capitalistic countries. As a result, the regime of cyclic "return to the past" is on. The movement of inverse-transformational economy of Ukraine happens according to the phases of cycle: from feudal capitalism to ersatz-capitalism and back to feudal capitalism. The emerging formula of "subsidy capitalism" in 2015-2016 is a new spiral of feudal-capitalism recovery. In this case, the manager of the "nationalized" company, who is ineffective for the society, may have both feudalistic status (armored Mercedes), and capitalistic status (hundred minimal salaries). Because of such often-happening institutional collisions, the quality of the national capital (productive, financial, institutional, human, intellectual, social) cannot become a decisive factor for economic dynamics of Ukraine. This forms the barriers for Ukraine's economic growth to the level of developed capitalistic countries. However, economic growth, which is based on modernization of underdeveloped productive technologies, is vital for responding the challenges of economic globalization.

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GLOBAL ECONOMIC DEVELOPMENT IN A CHALLENGING ENVIRONMENT

Moving towards globalization requires implementing the effective open business models which can be the adequate responses to the global challenges. Before beginning an analysis, a clear definition of globalization is needed.

Globalization is a very integrated concept not only with respect to the diversity of regions, cultures, and actors it involves, but also with respect to the diversity of analytical approaches that can be employed to study it. There are at least four distinct ways in which it is commonly understood (How):

- as a historical period;
- as a triumph of American values;
- as a social and technological revolution;
- as an annihilation of distance.

Globalization as a historical period. Globalization began as soon as the world began to become connected at the beginning of human history (Table 1.1).

Table 1.1

The growth of globalization levels in the historical process
(Sheffield J. and others, 2013)

Globalization levels	Period
Local links	Till the 7^{th}-6^{th} millennium BC
Regional links	From the 7^{th}-6^{th} millennium till the second half of the 4^{th} millennium BC
Regional and continental links	From the second half of the 4^{th} millennium BC to the first half of the 1^{st} millennium BC
Transcontinental links	From the second half of the 1^{st} millennium BC to the late 15^{th} century AD
Intercontinental links	From the late 15^{th} century to the early 19^{th} century
Global links	From the early 19^{th} century to the 1960s and 1970s
Planetary links	From the last third of the 20^{th} century to the mid-21^{st} century

Globalization as a triumph of American values (Americanization). This definition conceives of globalization as a global convergence of politics, economic practices, and culture around a specifically American way of development, and capitalism, in which consumption of goods and culture (film, music, restaurants, etc.) takes the place of cultural traditions. The result is a world that – at least in major cities – feels increasingly similar no matter where you are. The mainstream trends of Americanization are (Dollarization; Mcdonaldization):

1. Dollarization – a type of scenario whereby the dollar is used as legal tender by another country's citizens because the dollar currency is more stable than the currency normally used in the domestic country.

2. Mcdonaldization – the process by which the principles of the fast-food restaurant are coming to dominate more sectors of the society.

Globalization as a social and technological revolution. This revolution is creating a new economy in which the globe is a single market and a new social order in which people take part in a global culture and economy that is more open and flexible. It is typified by (How): globally integrated production; specialized but interdependent labor markets; the privatization of state assets; new technological linkages (phones, the internet, online markets) that transcend national borders.

The influence of technologies on globalization level is shown in the Table 1.2.

Table 1.2

The correlation between globalization levels and levels of technology
(Sheffield J. and others, 2013)

Globalization level	Level of technology
Local links	Hunting and gathering principle, beginning of the agrarian production revolution
Regional links	The second phase of the agrarian revolution; agrarian production principle reaches its maturity
Continental links	Final phase of the agrarian production principle
Intercontinental links	The first phase of the industrial production principle and industrial revolution
Global links	The second phase of the industrial revolution and the final phase of the industrial production principle
Planetary links	The start and development of scientific information revolution which second phase is forecasted for the 2030s and 2040s years

Globalization became an increasingly used term with technological innovations – most significantly the World Wide Web, or the Internet – that made financial transactions and recordkeeping of international shipments quicker and easier. As improved communication networks brought far-flung businesses together, it also brought different cultures together expanding the concept of globalization which now intersects the media, ideas, politics, economics, the arts and other social artifacts across the planet (Bishop T. and others).

Globalization as an annihilation of distance. If you have ever boarded a plane (in say New York), landed hours later in foreign city (Hong Kong), and been disoriented by the sudden shift, then you have experienced this form of globalization. The experience of space, it is argued, is intimately tied to the time necessary to connect distinct locations. Planes, cell phones, and the internet have combined to dramatically shrink that time, resulting in a fundamentally different human experience of space typified by:

- increased interconnectedness that lead distant events to have local impacts;
- the transcendence of local and national boundaries;
- the increased speed of social activity mediated by technology.

In general, globalization can be understood as the increasing integration and interdependence among countries resulting from the modern flow of people, trade, finance, technologies and ideas from one nation to another. The World Bank, a strong supporter of globalization, defines it as, "the growing integration of economies and societies around the world" (The official web-site).

Globalization has two distinct features: scope (or stretching) and intensity (deepening). On the one hand, it defines a set of processes, which embrace most of the globe: in this sense the concept has a spatial connotation. On the other hand, it implies intensification on the levels of interaction, interconnectedness or interdependence between states and societies which constitute the world community. So, alongside the stretching goes a deepening process (Oksuz S. 1998).

Salient features of globalization are (Ghai K.):

1. Liberalization: it stands for the freedom of the entrepreneurs to establish any industry or trade or business venture, within their own countries or abroad.

2. Free trade: it stands for the free flow of trade relations among all the nations. Each state grants most favored nation status to other states and keeps its business and trade away from excessive and hard regulatory and protective regimes.

3. Globalization of economic activity: it stands for the process of integrating the domestic economy with the world economies.

4. Liberalization of export-import system: it stands for liberating the export-import activity and securing a free flow of goods and services across borders.

5. Privatization: implies keeping the state away from ownership for means of production and letting the free flow of industrial and trade activities across borders.

6. Increased collaborations: means the encouraging the process of collaborations among the entrepreneurs with a view to secure rapid modernization, development and technological advancement.

7. Economic reforms: it stands for encouraging fiscal and financial reforms with a view to give strength to free world trade, free enterprise, and market forces.

Key specific driving forces of globalization include (Key driving): developments in transportation; advancements in communication; expansion of transnational corporations.

These forces are shown in the Table 1.3.

Table 1.3

Key specific driving forces of globalization *(Key driving)*

Forces	Explanation
Developments in transportation	- improvements in this field has “shrunk” the world considerably; - less time is required to travel from place to place; - it greatly simplified the transfer of goods from one mode of transportation to another.

End of Table 1.3

Forces	Explanation
Advancements in communication	- improvements in technology has made communications along people around the world faster and more convenient; - people can communicate via telephone, electronic mail, fax, and video conferencing; - satellite technologies has also enabled messages to be sent to different parts on the world simultaneously; - the Internet has enabled consumers to access information easily, as well as purchase item online; - TNCs can also coordinate and control their worldwide activities easily.
Expansion of transnational corporations	- TNCs are large global firms that operate in a number of countries and have production or service facilities outside the country of their origin; - examples are Microsoft corporation and Toyota Motor corporation; - they set up their operation in different parts of the world; - some reasons are to source for new markets and lower cost of production; - they are coordinated by headquarters which are located in their country of origin; - they source for components from around the word before assembling their final product in another country; - they make the world economy more integrated via transnationalization.

The way how a country combines economic, social, and political factors determines the level of its globalization. The relative success of globalization is evident in terms of increased foreign trade and capital flows, acceleration of growth rates and rising real per capita GDP in those countries that have opened up their economies. Top-25 highly globalized countries in 2017 are shown in the Table 1.4. The well connected and mostly small economies like the Netherlands, Ireland, and Belgium display especially high levels of globalization. Cross-country comparative analysis shows whether driving or restrictive forces are employed by a certain country on its way to the global integration.

Table 1.4

Cross-country comparisons for Globalization Index *(KOF)*

Rank	Economy	Globalization Index in 2010	Globalization Index in 2017	Growth rate, %	Driving (+) or restrictive (-) forces in use
1	Netherlands	91.90	92.84	+1.02	Driving forces
2	Ireland	86.92	92.15	+6.02	Driving forces
3	Belgium	92.95	91.75	-1.29	Restrictive forces
4	Austria	92.51	90.05	-2.66	Restrictive forces

End of Table 1.4

Rank	Economy	Globalization Index in 2010	Globalization Index in 2017	Growth rate, %	Driving (+) or restrictive (-) forces in use
5	Switzerland	90.55	88.79	-1.94	Restrictive forces
6	Denmark	89.68	88.37	-1.46	Restrictive forces
7	Sweden	89.75	87.96	-1.99	Restrictive forces
8	United Kingdom	80.18	87.26	+8.83	Driving forces
9	France	86.18	87.19	+1.17	Driving forces
10	Hungary	87.00	86.55	-0.52	Restrictive forces
11	Canada	88.24	86.51	-1.96	Restrictive forces
12	Finland	87.31	86.30	-1.16	Restrictive forces
13	Portugal	87.54	85.04	-2.86	Restrictive forces
14	Cyprus	82.45	85.00	+3.09	Driving forces
15	Czech Republic	86.87	84.88	-2.29	Restrictive forces
16	Germany	84.16	84.57	+0.49	Driving forces
17	Spain	85.71	84.56	-1.34	Restrictive forces
18	Slovak Republic	85.07	84.36	-0.83	Restrictive forces
19	Luxembourg	85.84	84.21	-1.90	Restrictive forces
20	Singapore	84.58	83.64	-1.11	Restrictive forces
21	Norway	83.53	83.50	-0.04	Restrictive forces
22	Australia	83.82	82.97	-1.01	Restrictive forces
23	Italy	82.26	82.19	-0.09	Restrictive forces
24	Croatia	76.85	81.39	+5.91	Driving forces
25	Poland	81.26	81.32	+0.07	Driving forces

The bulk of the highly globalized countries belong to the European Union. Nowadays Europe remains the world's most globally connected region. In 2017, Ukraine occupied the 45th place with 70.24 score (KOF).

Globalization is such a complex economic phenomenon that there is a crucial need to distinguish its pros and cons from economic angle.

Economic globalization. Economic globalization (Pros) is a process in which the world becomes a single global market of individual consumers. These consumers are characterized by their material and economic self-interest. The expansion and dominance of global companies and brands is another key feature. These corporations contribute to deepen global interconnectedness not only by uniformly shaping consumption patterns across societies, but by binding economies together through complex supply chains, trade networks, flows of capital and manpower.

Pros of economic globalization (Pros):

- cheaper prices for products and services (more optimized supply chains);
- better availability of products and services;

- easier access to capital and commodities;
- increased competition;
- producers and retailers can diversify their markets and contribute to economic growth

Cons of economic globalization (Pros):

- some countries struggle to compete;
- extractive behavior of some foreign companies and investors in resource-rich countries preventing economic diversification;
- strong bargaining power of multinational companies vis-a-vis local governments;
- problems of "social dumping".

The World Economic Forum identifies five key challenges that require greater global attention and action for global cooperation (The Global): economic, societal, geopolitical, environmental, and technological challenges.

Global risks are arisen from global challenges. A **global risk** is defined as uncertain event or condition that, if it occurs, can cause significant negative impact for several countries or industries within the next 10 years (The Global). Economic global risks are shown in the Table 1.5.

Table 1.5

Economic global risks and their description *(The Global)*

Global risks	Description
Asset bubbles in a major economy	Unsustainably overpriced assets such as commodities, housing, shares, etc. in a major economy or region
Deflation in a major economy	Prolonged near-zero inflation or deflation
Failure of a major financial mechanism or institution	Collapse of a financial institution and/or malfunctioning of a financial system that impacts the global economy
Failure/shortfall of critical infrastructure	Failure to adequately invest in, upgrade and/or secure infrastructure networks (e.g. energy, transportation and communications), leading to pressure or a breakdown with system-wide implications
Fiscal crises in key economies	Excessive debt burdens that generate sovereign debt crises and/or liquidity crises
High structural unemployment or underemployment	A sustained high level of unemployment or underutilization of the productive capacity of the employed population
Illicit trade (e.g. illicit financial flows, tax evasion, human trafficking, organized crime, etc.)	Large-scale activities outside the legal framework such as illicit financial flows, tax evasion, human trafficking, counterfeiting and/or organized crime that undermine social interactions, regional or international collaboration, and global growth
Severe energy price shock (increase or decrease)	Significant energy price increases or decreases that place further economic pressures on highly energy-dependent industries and consumers
Unmanageable inflation	Unmanageable increases in the general price levels of goods and services in key economies

Societal global risks are shown in the Table 1.6.

Table 1.6

Societal global risks and their description *(The Global)*

Global risks	Description
Failure of urban planning	Poorly planned cities, urban sprawl and associated infrastructure that create social, environmental and health challenges
Food crises	Inadequate, unaffordable, or unreliable access to appropriate quantities and quality of food and nutrition on a major scale
Large-scale involuntary migration	Large-scale involuntary migration induced by conflict, disasters, environmental or economic reasons
Profound social instability	Major social movements or protests (e.g. street riots, social unrest, etc.) that disrupt political or social stability, negatively impacting populations and economic activity
Rapid and massive spread of infectious diseases	Bacteria, viruses, parasites or fungi that cause uncontrolled spread of infectious diseases (for instance as a result of resistance to antibiotics, antivirals and other treatments) leading to widespread fatalities and economic disruption
Water crises	A significant decline in the available quality and quantity of fresh water, resulting in harmful effects on human health and/or economic activity

Geopolitical global risks are shown in the Table 1.7.

Table 1.7

Geopolitical global risks and their description *(The Global)*

Global risks	Description
Failure of national governance (e.g. corruption)	Inability to govern a nation of geopolitical importance as a result of weak rule of law, corruption or political deadlock
Failure of regional or global governance	Inability of regional or global institutions to resolve issues of economic, geopolitical or environmental importance
Interstate conflict with regional consequences	A bilateral or multilateral dispute between states that escalates into economic (e.g. trade/currency wars, resource nationalization), military, cyber, societal or other conflict
Large-scale terrorist attacks	Groups with political or religious goals that inflict large-scale human or material damage
State collapse or crisis (e.g. civil conflict, military coup, failed states, etc.)	State collapse of geopolitical importance due to internal violence, regional or global instability, military coup, civil conflict, failed states, etc.
Weapons of mass destruction	The deployment of nuclear, chemical, biological and radiological technologies and materials, creating international crises and potential for significant destruction

Environmental global risks are shown in the Table 1.8.

Table 1.8

Environmental global risks and their description *(The Global)*

Global risks	Description
Extreme weather events (e.g. floods, storms, etc.)	Major property, infrastructure and/or environmental damage as well as loss of human life caused by extreme weather events
Failure of climate-change mitigation and adaptation	The failure of governments and businesses to enforce or enact effective measures to mitigate climate change, protect populations and help businesses impacted by climate change to adapt
Major biodiversity loss and ecosystem collapse (terrestrial or marine)	Irreversible consequences for the environment, resulting in severely depleted resources for humankind as well as industries
Major natural disasters (e.g. earthquake, tsunami, volcanic eruption, geomagnetic storms)	Major property, infrastructure and/or environmental damage as well as loss of human life caused by geophysical disasters such as earthquakes, volcanic activity, landslides, tsunamis, or geomagnetic storms
Man-made environmental damage and disasters (e.g. oil spills, radioactive contamination, etc.)	Failure to prevent major man-made damage and disasters, including environmental crime, causing harm to human lives and health, infrastructure, property, economic activity and the environment

Technological global risks are shown in the Table 1.9.

Table 1.9

Technological global risks and their description *(The Global)*

Global risks	Description
Adverse consequences of technological advances	Intended or unintended adverse consequences of technological advances such as artificial intelligence, geo-engineering and synthetic biology causing human, environmental and economic damage
Breakdown of critical information infrastructure and networks	Cyber dependency that increases vulnerability to outage of critical information infrastructure (e.g. internet, satellites) and networks, causing widespread disruption
Large-scale cyber attacks	Large-scale cyber attacks or malware causing large economic damages, geopolitical tensions or widespread loss of trust in the internet
Massive incident of data fraud/theft	Wrongful exploitation of private or official data that takes place on an unprecedented scale

The most significant global risks estimated in terms of likelihood are shown in the Table 1.10.

Table 1.10

Top 5 global risks in terms of likelihood, 2007-2017 *(The Global)*

	Economic	Environ-mental	Geopolitical	Societal	Technological
2007	Oil price shock; China economic hard lending; asset price collapse	–	–	Chronic disease in developed countries	Breakdown of critical information infrastructure
2008	Asset price collapse; oil and gas price spike	–	Middle East instability; failed and failing states	Chronic disease in developed countries	–
2009	Asset price collapse; slowing Chinese economy; retrenchment from globalization	–	Global governance gaps	Chronic disease in developed countries	–
2010	Asset price collapse; slowing Chinese economy; fiscal crises	–	Global governance gaps	Chronic disease in developed countries	–
2011	–	Storms and cyclones; flooding; biodiversity loss; climate change	Corruption	–	–
2012	Chronic fiscal imbalance	Rising greenhouse gas emissions; water supply crises	–	Severe income disparity	Cyber attacks
2013	Chronic fiscal imbalance	Rising greenhouse gas emissions; water supply crises	–	Severe income disparity; population ageing	–
2014	Unemployment and underemp-loyment	Extreme weather events; climate change	–	Income disparity	Cyber attacks

End of Table 1.10

	Economic	Environ-mental	Geopolitical	Societal	Technological
2015	High structural unemployment and underemp-loyment	Extreme weather events	Interstate conflict; failure of national governance; state collapse	–	–
2016	–	Extreme weather events; failure of climate change mitigation; major natural catastrophes	Interstate conflict with regional consequences	Large-scale involuntary migration	–
2017	–	Extreme weather events; major natural disasters	Large-scale terrorist attacks	Large-scale involuntary migration	Massive incident of data fraud/theft

As can be seen from the Table 1.10, the landscape of evolving global risks has changed in a certain way. Global economic risks were replaced, in the first turn, by environmental ones. The mankind has learned how to cope with economic risks and predict them. Economic risks, in comparison to environmental ones, are easily to manage. Nowadays, geopolitical, societal, and technological risks are topical questions for the policy-makers under the circumstances of global economic development.

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THE IMPACT OF TAX GLOBALIZATION ON THE COSTS OF TAX COMPLIANCE

The research deals with the costs of tax compliance which arise to taxpayers from tax complexity and constant changes in tax legislation as a result of European tax globalization. The main aim of the research is to investigate whether greater tax law complexity is associated with more time spent on tax compliance. Accordingly, it is hypothesized that greater tax law complexity is associated with greater tax compliance costs. The research finds that respondents from micro and small companies are of the opinion that the two for most common causes of tax complexity are too frequent changes in tax legislation and too high a number of tax laws, at the level of significance 5 %. The research entails an experimental survey in which the replies of taxpayers about tax complexity were evaluated with the average gross hourly wage and on what basis tax compliance costs are calculated in Slovenia. Our factor analysis confirms there is a strong relationship between the studied factors and tax compliance.

Introduction. The concept of tax compliance can be explained as the fulfilment of tax obligations. Tax compliance is the willingness of taxpayers to act in accordance with tax legislation. The discipline of taxpayers that are willing to submit tax returns or show tax liabilities in accordance with tax legislation timely and properly. We believe that the concept of tax compliance should be used in terms of requisite integrity of the areas, in our case, tax areas and, therefore, uses the notion of tax compliance which, in our view, includes more than just the stage of fulfilment of tax obligations or behaviour of a taxpayer towards taxes. In our view, the concept of tax compliance respects the principle of integrity in terms of treatment of all the factors and processes necessary to achieve the ultimate goal of paying taxes. The use of the concept of tax compliance we argue from a legal point of view, with the judgment of the EU Court in the case of Marks & Spencer[1].

An innovative approach in the context of our research stems from the observation that Slovenia has not yet carried out a comprehensive survey of the costs of tax compliance. Our research contributes to the literature by developing process maps for each of taxes analysed to give users a clear indication about what costs to include and how to interpret obligations. This would increase

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[1] Case C – 446/03 Marks & Spencer plc, on 13 December, 2005. Opinion of Advocate General Poiares Maduro delivered on 7 April, 2005, paragraphs 64, 66 and 67.

even further the transparency and comparability of the EU measurements in screening tax compliance costs of the Member States' tax systems; what is the main contribution of our research to the field of tax systems' globalisation.

The Empirical section is devoted to presentation of 3 hypotheses and the results of statistical tests along with the calculated cost of tax compliance on the basis of the collected empirical results. The collected data was analysed in SPSS descriptive analysis of the variables and one-way analysis of variance (one-way ANOVA) was used to test the hypotheses. At the end of the research, we used factor analysis to measure the Tax Compliance (Y) caused by 10 factors of Tax Compliance.

Tax Compliance in conjunction with Tax Complexity and Tax Aggressiveness. Tax complexity is the result of the increased complexity of tax laws, caused by the calculation complexity or the complexity of accounting for certain types of taxes, complexity of tax forms, complexity of compliance with tax legislation, legal complexity, process complexity and low level of readability of legislation, which are the key indicators of tax complexity (Evans, & Tran-Nam, 2013; OTS, 2015; PwC & The World Bank Group, 2015; IREF, 2015; Vaillancourt, Roy, & Lammam, 2015). Causes of tax complexity are: ambiguities in tax legislation and tax returns (Saad, 2013), frequent changes in tax laws (Saad, 2013), details of tax legislation (Saad, 2013), forms and record keeping (Saad, 2013), tax control, tax morale (Alm & Torgler, 2012; Luttmer, & Singhal, 2014), tax mentality (Manhire, 2015) and aggressive tax planning (Evans, & Tran-Nam, 2013).

Tax compliance significantly affects tax aggressiveness which can be defined as reduction of the tax base through tax planning, which can be legall or illegall. Tax aggressiveness is in some cases recognized as the extent of illegal and highly controversial strategies, otherwise – as risky tax planning strategies involving complex accounting reporting (Hanlon, Krishnan, & Mills, 2009, p. 47). The most competitive tax systems are those that are simple, permanent, understandable, and do not cause high costs of tax compliance. The cost of tax compliance has to be considered from the perspective of taxpayers and in terms of state institutions, i.e. at both micro and macro levels. The latter includes the cost of operating elements that arise during the operation of financial administration of courts, costs of tax matters and costs of the Ministry of Finance in adopting fiscal measures.

Costs of Tax Compliance. The costs of tax compliance are the costs of: knowledge of tax liability, education (Sapiei, & Kasipillai 2014; English & Hammond, 2015; Evans, & Tran-Nam, 2013); obtaining the opinion of financial administration, lawyers, tax consultants, auditors (Sapiei & Kasipillai, 2014; English & Hammond, 2015;); preparing correspondence with financial administration (letter, fax, e-mail), providing information or data to the tax or any other competent authority (Pavela & V?teka 2014; Sapiei & Kasipillai, 2014;

English & Hammond, 2015); tax payments – electronic banking, payment at bank counter (Batkins 2015; Evans & Tran-Nam, 2013); photocopying, document storage, purchase of materials for the implementation of tax compliance (Pavela & V?teka 2014; NTUFS, 2015); cooperation during inspection, cooperation with auditors and tax consultants (Sapiei & Kasipillai, 2014); completing online booking tax form, checking the entered data and results, elimination of errors found, preparation of simulation calculations, verification of tax liabilities (Batkins, 2015; English & Hammond, 2015); the time spent on meetings with financial management, internal and external meetings, gathering and processing of data and information, including calculations for completion and publication of data (Sapiei & Kasipillai, 2014; Batkins, 2015; NTUFS, 2015; Clayton, 2015); changes in tax legislation (Thomson Reuters, 2015; English & Hammond, 2015); stress and anxiety i.e. psychological costs (Sapiei & Kasipillai, 2014; Lopes & Martins, 2013).

Research methodology. The main objective of this research was to investigate the taxpayers' views on tax law complexity and how many hours they spend monthly and annually on tax compliance. The study is focused on micro and small-sized companies[2]. We used a non-probability sample, since an online survey included the whole population of micro and small-sized companies in Slovenia, where all respondents have the same probability for answers and they themselves choose whether to be included in the research. Previous studies have shown a 2% response rate can be expected. We provided a specific survey homogeneous population – all micro and small-sized companies in Slovenia that submitted financial statements to the Statistical Office of Slovenia.

The questionnaire in our research was developed and partially adopted from different studies. Most of the variables of tax compliance were measured on 5 point Likert scales. The participants were asked to indicate their degree of agreement with the statements about tax legislation and tax complexity in each scale (1 = "strongly disagree" to 5 = "strongly agree"). The survey was conducted in February 2016 and was sent to 40,000 email addresses of the employees in Slovenian corporate taxpayers. The bases for the analysis presented in this paper is formed by 544 obtained responses, which represents a 1.36% response rate. This response is representative. The collected data was analysed using SPSS software, a descriptive analysis of the variables, one-way analysis of variance (one-way ANOVA) and factor analysis was used to test the hypotheses. The significance level was set to 0.05 (5%). As the first step of our

[2] The size of the company is provided by the Slovenian Companies Act:

- Companies are micro if they meet two following criteria: The average number of employees during the financial year does not exceed 10, net income sales do not exceed EUR 700,000, the value of assets does not exceed EUR 350,000;

- A company is small if it meets two following criteria: The average number of employees during the financial year does not exceed 50, net income sales do not exceed EUR 8,000.000, the value of assets does not exceed EUR 4,000.000.

analysis, we examined the descriptive statistics of the analysed variables. Then we carried out verification of the hypothesis, separately for micro and small companies. To test if the variables are featured by normal distribution in the analysed period we used Kolmogorov-Smirnov and Shapiro-Wilk tests. The indicators were distributed normally ($p = 0.000$). With the empirical study on the basis of interviewed businesses, we analysed the factors on tax compliance, hours spent for tax compliance and evaluated the tax compliance costs that taxpayers incurred in completing the tax return. We tested the following hypotheses:

Hypothesis 1. Taxpayers perceive a very high degree of tax law complexity.

Hypothesis 2. Micro and small companies, spend 1 to 10 hours per year tax compliance.

Hypothesis 3. Micro and small companies, spend 1 to 10 hours per month on tax compliance, for taxes monthly.

The research was limited to all micro and small-sized companies that submitted financial statements to the Statistical Office of Slovenia. The limit also applies to the verification of agreement with statements about tax complexity we have taken from European studies, so the possibility of comparing the results is obtained. The second limitation is that, as with any mail survey, the researcher had no control over the conditions under which the research was actually administered. In addition, the researcher has no assurance whether a person to whom the questionnaire was directed actually completed the questionnaire or passed it along to a subordinate. The sample used in this research consisted of corporate tax executives in micro and small-sized companies, so the generalizability of these findings to large companies is not accurate; additional research will be needed to determine if the findings hold for larger companies.

Results and Discussion. For the purpose of our research we have used 4 sets of tax compliance variables, which have been measured by Likert scales. The participants were asked to indicate their degree of agreement with the statements about: tax legislation, for what we used 10 claims (from Q5.1 to Q5.10[3]); complexity of tax legislation, for what we used 10 claims (from Q6.1 to Q6.8[4]); the number of hours spent on tax compliance on annual basis (from

[3] Q5.1 – The number of tax laws is too high; Q5.2 – Changes is tax legislation are too frequent; Q5.3 – Tax legislation is understandable and easy to read; Q5.4 – In Tax law, we have too many tax purposes which are incomprehensible; Q5.5 – The number of articles in tax legislation is too small; Q5.6 – The number of references to other articles in the Tax Law is too broad; Q5.7 – The number and accessibility of interpretations of tax legislation is satisfactory; Q5.8 – The number of exemptions and tax relief is insufficient; Q5.9 – Publicly accessible explanations and the opinion of tax administration are readable and understandable; Q5.10 – Publicly accessible explanations and the opinion of tax administration are timely and accurate.

[4] Q6.1 – Computational complexity of tax forms is too complicated; Q6.2 – To review and comment on proposals for tax legislation in the Parliament, sufficient time is allocate; Q6.3 – The length

Q7.1 to Q7.9[5]); the number of hours spent on tax compliance on monthly bases (from Q8.1 to Q8.5[6]). For the evaluation of spent hours on annual and monthly basis, we used 7 claims (from Q9.1 to Q9.7[7]). We used 10 point scale to evaluate the levels of stress, fear and anxiety.

Review of the findings of statistical data processing for Hypothesis 1. To verify the hypotheses 1 we have used claims from Q5 (Table 1) and Q6. The Hypothesis 1 that taxpayers perceive a very high degree of tax law complexity is confirmed by the results of Q5 and Q6.

Table 1

Assessment of the validity of claims on tax law complexity

	Q5.1	Q5.2	Q5.3	Q5.4	Q5.5	Q5.6	Q5.7	Q5.8	Q5.9	Q5.10
Micro companies										
Mean	4.46	4.53	1.88	3.55	1.97	4.23	2.33	3.61	2.28	2.32
N	353	350	352	350	347	347	347	347	349	348
Std. Deviation	.895	.807	1.011	1.411	1.101	1.068	1.113	1.306	1.099	1.078
Variance	.800	.651	1.023	1.991	1.213	1.142	1.240	1.707	1.207	1.162
Median	5.00	5.00	2.00	4.00	2.00	5.00	2.00	4.00	2.00	2.00
Small companies										
Mean	4.39	4.43	2.08	3.79	1.83	3.93	2.36	3.47	2.33	2.39
N	76	76	76	75	75	75	75	75	75	75
Std. Deviation	.834	.899	1.163	1.339	1.045	1.166	1.074	1.308	1.044	1.114
Variance	.695	.809	1.354	1.792	1.091	1.360	1.152	1.712	1.090	1.240
Median	5.00	5.00	2.00	4.00	1.00	4.00	2.00	4.00	2.00	2.00

Source: Own calculations using SPSS.

of the tax law in the form of words, articles and pages is too large; Q6.4 – Due to excessive complexity of tax legislation, we used the services of tax advisors; Q6.5 – We should reduce the frequency of changes in tax laws; Q6.6 – Tax legislation should be simplified and shortened; Q6.7 – In the preparation of tax returns I am under a lot of stress; Q6.8 – For timely reading of tax legislation we are running out of time.

[5] Q7.1 – Education and participation in seminars on tax laws; Q7.2 – Assembly/fulfilment levy a tax on corporate income and control thereof; Q7.3 – Tax planning; Q7.4 – Preparation and upgrading computer programme due to changes in tax legislation (for example, changes in tax rates); Q7.5 – Harmonisation with tax administration, obtaining an opinion on the tax issues from tax administration, lawyers, tax consultants, auditors; Q7.6 – Participation in tax inspection; Q7.7 – Review of tax returns with director/owners of the company; Q7.8 – For a lawyer in tax disputes; Q7.9 – For an auditor. The respondents may qualify 6 claims: 0 hour; 1-10 hours; 11-15 hours; 16-25 hours; 26-40 hours; more than 40 hours.

[6] Q8.1 – Assembly/fulfilment levied Value Added Tax and control thereof; Q8.2 – Assembly/fulfilment calculation of wages (income tax, social security contributions) and control over them; Q8.3 – Compilation of accounts of other taxes and control thereof; Q8.4 – For tax advisory; Q8.5 – For accounting services (Outsourcing). The respondents may qualify 6 claims: 0 hour; 1-10 hours; 11-15 hours; 16-25 hours; 26-40 hours; more than 40 hours.

[7] Q9.1 – Accountant; Q9.2 – CFO; Q9.3 – CEO; Q9.4 – Accounting Services (Outsorcing); Q9.5 – Lawyer; Q9.6 – Auditor; Q9.7 – Tax advisor. The respondents may qualify 6 claims: up to 10 EUR; 11-20 EUR; 21-40 EUR; 41-60 EUR; 61-80 EUR; more than 81 EUR.

The survey found that micro and small companies were assessed equal with the highest score following the claims on tax legislation: changes is tax legislation are too frequent, the number of tax laws is too high and the number of references to other articles in the Tax Law is too broad.

Levene's Test for Equality of Variances for assessment of the validity of claims on tax legislation (Q5), determined by micro and small companies, shows there were no statistically significant differences of variances ($p > 0.05$). This confirms the value of the t-test for an arithmetic mean of assessment of the validity of claims on tax legislation, because between micro and small companies there were no statistically significant differences in arithmetic mean in the assessment of the validity of claims on tax legislation.

The survey found that micro companies assessed with the highest score, 7 of the 8 claims on the complexity of tax legislation (Q6): tax legislation should be simplified and shortened (4.72), We should reduce the frequency of changes in tax laws (4.60), For timely reading of tax legislation we are running out of time (4.40), The length of the tax law in the form of words, articles and pages is too large (4.12), The computational complexity of tax forms is too complicated (3.85), In preparation of tax returns I am under a lot of stress (3.85), Due to the excessive complexity of tax legislation we used the services of tax advisors (3.83).

The survey found that Small companies assessed with the highest score, 7 of the 8 claims on the complexity of legislation (Q6): Tax legislation should be simplified and shortened (4.78), We should reduce the frequency of changes in tax laws (4.60), For timely reading of tax legislation we are running out of time (4.40), The length of the tax law in the form of words, articles and pages is too large (4.34), Due to the excessive complexity of tax legislation we used the services of tax advisors (3.89), The computational complexity of tax forms is too complicated (3.86), In the preparation of tax returns I am under a lot of stress (3.69). There are no statistically significant differences between the estimated claim of the tax legislation between small and micro companies.

Levene's Test for Equality of Variances for assessment of the validity on the complexity of tax legislation (Q6), as determined by micro and small companies, shows no statistically significant differences in variances ($p > 0.05$). This confirms the value of the t-test for an arithmetic mean of assessment of the validity on the complexity of tax legislation, because between micro and small companies, there were no statistically significant differences.

Levene's Test for Equality of Variances for assessment of the validity on the complexity of tax legislation (Q6), determined by micro and small companies, generated a statistically significant difference in variances only on the length of the Tax Law in the form of words, articles and pages is too large ($F = 6.461$, $p = 0.011$), which has been confirmed by the value of the t-test for an arithmetic mean of assessment of the validity on the complexity of tax legislation because between

micro and small companies, there are statistically significant differences (t = -2.030, df = 126.057, p = .044).

Review of the findings of statistical data processing for Hypothesis 2. To verify the hypothesis we have used the claims from Q7. The Hypothesis 2 that micro and small companies on the claim for the number of hours spent for tax compliance on the annual basis, select between 1 and 10 hours per year, is confirmed by the results of Q7. Irrespective of the size of a company, the majority of the respondents to the claim on the number of hours spent for tax compliance on the annual basis, select between 1 and 10 hours per year: Q7.1; Q7.2; Q7.3; Q7.4; Q7.5; Q7.7. For other claims, such as Q7.6, Q7.8; Q7.9, companies are selecting zero hours, which can be explained by the fact that they are small companies that do not have a tax inspection, do not need a lawyer and are also not obliged to audit the financial statements.

The survey found that microcompanies spend annually at least: 14.7414 hours for Q7.4; 14.6833 hours for Q7.2; 12.5932 hours for Q7.3; 11.9483 hours for Q7.3; 9.4333 hours for Q7.1; 9.4407 hours for Q7.7; 7.6441 hours for Q7.6; 4.2034 hours for Q7.9 (which can be explained by the fact that they have an obligation to cooperate with auditors, in the event that the ownership of the parent company, which is committed to consolidation of financial statements) and at least 3.5763 hours for Q7.8. Small companies also selected the same order of the number of hours spent on tax compliance, which is slightly higher as compared to micro-enterprises.

Levene's Test for Equality of Variances for the annual spending hours for Tax Compliance in micro and small companies, shows no statistically significant differences in variances (F = 1.002; p > 0.05). This confirms the value of the t-test for an arithmetic mean because, between micro and small companies, there were no statistically significant differences (t = -1.966, df = 337, p = .050).

Review of the findings of statistical data processing for Hypothesis 3. To verify the hypothesis 3 we have used claims from Q8. Hypothesis 3 that micro and small companies on the claim on the number of hours spent on tax compliance for taxes on a monthly basis, select between 1 and 10 hours per month, is confirmed by the results of Q8. Irrespective of the size of a company, the majority of the respondents to the claim on the number of hours spent for tax compliance on the monthly basis, select between 1 and 10 hours per month: Q8.1; Q8.2; Q8.3; Q8.5. For claim Q8.4, companies select zero hours, which can be explained by the fact they are small companies and do not need tax advisory services.

The survey found that microcompanies monthly spend monthly at least: 4.9345 hours for Q8.5; 4.4780 hours for Q8.1; 4.0685 hours for Q8.2; 3.6621 hours for Q8.3 and at least 2.0381 hours for Q8.4. Small companies also selected a similar order of the number of hours spent en tax compliance, which is slightly higher compared to Micro-enterprises.

Evaluation of Tax Compliance Costs in Micro and Small Companies. The respondents were asked to evaluate the gross cost of business hours, but not the whole (total) cost which they pay for a function or a person. Microcompanies have estimated the gross cost of operating hours they pay for the selected function (accountant, director/board member, accounting service – in outsourcing, lawyer, auditor and tax consultant), to 10 EUR. The low valued hour can be attributed to low salaries in microcompanies, which are mostly family-owned. Small companies have estimated the gross cost of operating hours they pay for the selected function between 21 and 40 EUR.

Assuming that the minimum value of the hourly rate is 10 EUR, microcompanies spend annually a minimum of 3,040 EUR and small companies a minimum of 2,780 EUR on tax compliance regarding: Q7.1 – Education and participation in seminars on tax laws; Q7.2 – Assembly/fulfilment levy a tax on corporate income and control thereof; Q7.3 – Tax planning; Q7.4 – Preparation and upgrading computer programme due to changes in tax legislation (for example, changes in tax rates); Q7.5 – Harmonisation with tax administration, obtaining an opinion on the tax issues from tax administration, lawyers, tax consultants, auditors and others; Q7.6 – Participation in tax inspection; Q7.7 – Review of tax returns with the director/owners of the company; Q7.8 – Lawyer in tax disputes; Q7.9 – Auditor. Levene's Test for Equality of Variances for Tax Compliance Costs in micro and small companies on the annual basis shows there were no statistically significant differences in variances ($F = 1.002$; $p > 0.05$). This confirms the value of the t-test for an arithmetic mean of tax compliance costs, because between micro and small companies there were no statistically significant differences ($t = -1.966$, $df = 337$, $p = .050$).

Assuming that the minimum value of the hourly rate is 10 EUR, microcompanies spent monthly a minimum of 2,000 EUR and small companies a minimum of 1,360 EUR on tax compliance regarding Value Added Tax, wages, other tax obligations, tax advisory and accounting services. Levene's test for equality of Variances for tax compliance costs in micro and small companies on a monthly basis shows there were no statistically significant differences in variances ($F = .057$; $p > 0.05$). Pearson's Chi-square for tax compliance costs in micro and Small Companies on a monthly basis shows a statistically significant correlation between monthly spending hours for Tax Compliance: Q8.1 – Assembly/fulfilment levied Value Added Tax and control thereof, $\chi^2 = 1234.982$, $df = 320$, $p = <0.05$; Q8.2 – Assembly/fulfilment calculation of wages (Income Tax, Social Security Contributions, and control of them, $\chi^2 = 1357.353$, $df = 320$, $p = <0.05$; Q8.3 – Compilation of accounts of other taxes and control thereof, $\chi^2 = 1409.438$, $df = 320$, $p = <0.05$; Q8.4 – For tax advisory, $\chi^2 = 1326.77$, $df = 320$, $p = <0.05$; Q8.5 – For accounting services, $\chi^2 = 1207.638$, $df = 320$, $p = <0.05$; and the most common estimate of the hourly rate (10 EUR).

Factor analysis of Tax Compliance. Factor analysis (Table 2) attempts to achieve parsimony by explaining the maximum amount of common variance in a correlation matrix using the smallest number of explanatory constructs (latent variables). The reliability of factor analysis is very good, because we have more than 300 answers to each component. If a factor has 4 or more loadings greater than 0.6 then it is reliable regardless of the sample size. Our sample will provide a stable factor solution. We used Kaiser-Meyer-Olkin measure of sampling adequacy (KMO). We wanted to measure the Tax Compliance (Y) caused by factors Q5, as follows:

Yi = b1Q5.1i + b2Q5.2i + b3Q5.3i + b4Q5.4i + b5Q5.5i + b6Q5.6i + b7Q5.7i + b8Q5.8i + b9Q5.9i + b10Q5.10i

The value of b will be different, depending on the relative importance of each variable to the particular component. The values of b are high for all variables, for none variable values of b are not close to 0. This tells us all of the variables are very important for that component. We calculate the correlation coefficients for each pair of variables and create an R-matrix. There appear to be three clusters of interrelating variables. The relationships indicate that higher level of tax compliance (Y) is caused by all 10 Q5 factors. Factor analysis aims to reduce this R-matrix down into a smaller set of dimensions. Factor analysis shows that tax compliance (Y) can be measured by factors Q5, as follows:

Tax Compliancei = 0.650 x Q5.1i + 0.588 x Q5.2i + 0.399 x Q5.3i + 0.439 x x Q5.4i + 0.544 x Q5.5i + 0.513 x Q5.6i + 0.606 x Q5.7i + 0.664 x Q5.8i + + 0.669 x Q5.9i + 0.672 x Q5.10i

Table 2

Factor Analysis

	Q5.1	Q5.2	Q5.3	Q5.4	Q5.5	Q5.6	Q5.7	Q5.8	Q5.9	Q5.10
Communalities										
Extraction	.650	.588	.399	.439	.544	.513	.606	.664	.669	.672
Total Variance Explained										
Initial Eigenvalues - % of Variance	29,328	16,509	11,612	9,166	7,605	6,983	6,356	4,794	4,019	3,629
Rotated Factor Matrix										
Factor 1			.458				.677		.753	.758
Factor 2	.769	.665		.367		.528				
Factor 3					.474			.409		

Note: Extraction Method: Principal Axis Factoring. All loading less than 0.3 are suppressed in the output. There are 7 (15,0%) nonredundant residuals with the absolute values greater than 0.05, which is certainly nothing to worry about.

The determinant of the R-matrix for our data is 0.122, which is greater than the necessary value of 0.00001, so the multicollinearity isn't a problem. All arguments correlate reasonably well with all others. For KMO statistic the value is 0.743, which is well above the minimum criterion of 0.5, so we should be confident that the sample size is adequate for factor analysis. Bartlett's measure tests the null hypothesis that the original correlation matrix is an identity matrix ($p = 0.000$). The diagonal elements of the anti-image correlation matrix should be all above the bare minimum of 0.5. For our data all values are well above 0.5. A principal axis factor analysis was conducted on the 10 items with oblique rotation. The Kaiser-Meyer-Olkin measure verified the sampling adequacy for the analysis, KMO = 0.743, and all KMO values for individual items were greater than 0.5. Bartlett's test of sphericity is significant ($p = 0.000$). Initial analysis was run to obtain eigenvalues for each factor in the data. Three factors had eigenvalues over Kaiser's criterion of 1 and in combination explained 57.45% of the variance. The scree plot was ambiguous and showed inflexions that would justify retaining either 2, or 3 factors. We retained 3 factors because of the large sample size and the convergence of the scree plot and Kaiser's criterion on this value. There are three factors and most variables load very highly on factor 1 and 2. Cronbach's α is 0.424 and indicates the overall reliability of our questionnaire.

Conclusions. With our research we found that taxpayers in Slovenia perceive a very high degree of tax law complexity. The survey found that the respondents from micro and small companies are of the opinion, that: Changes in tax legislation are too frequent; the number of tax laws is too high; the number of references to other articles in the Tax Law is too broad; Tax legislation should be simplified and shortened; we should reduce the frequency of changes in tax laws; for timely reading of tax legislation we are running out of time; the length of the tax law in the form of words, articles and pages is too large; the computational complexity of tax forms is too complicated; in the preparation of tax returns we are under a lot of stress; due to excessive complexity of tax legislation we used the services of tax advisors. Micro and small companies, to the claim on the number of hours spent for tax compliance for taxes on an annual basis, select between 1 and 10 hours per year; to the claim on the number of hours spent on tax compliance for taxes on a monthly basis, select between 1 and 10 hours per month. There are no statistically significant differences between the estimated studied areas of tax compliance between small and micro companies in Slovenia.

The results of our empirical research are important from the view of the globalization tax process in the XXI century, because they offer insight into the nature and estimate of the costs of tax compliance and, consequently, enable the comparison of the key findings from other studies in other countries and can be

taken into account in the development of the model for the reduction of tax complexity under tax globalization.

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Yatsenko V.

KEY CHALLENGES OF THE ECONOMIC SYSTEM IN THE XXI CENTURY

Current challenges of the modern economic paradigm lie in emergence which means that the economic development process arises in different vectors at the same time: knowledge economy (post-industrial economy), green economy and network economics (e-economics). The main issue of knowledge economy (post-industrial economy) comes from its subject – knowledge. Intellectual property protection in global networks and personal data security are the key challenges of network economics (e-economics). The core problem of the green economics is the consensus between environmental and economic efficiency, which can be eliminated through commercialization of environmental relations. Institutional aspect is also of great importance, since institutional support discrepancies can cause significant difficulties in doing business, what is essential in terms of mega levels of the economic system.

Introduction. Current challenges of the modern economic paradigm mean that economic development process arises from different vectors at the same time. There are several new economic structures, which are forming and developing at the same period. There are service economy and green economy, post-industrial and knowledge economy, e-economics and network economy, global economics. Although all these directions of economic development are interconnected and complementing each other, their interaction leads to some conceptual challenges (fig. 1).

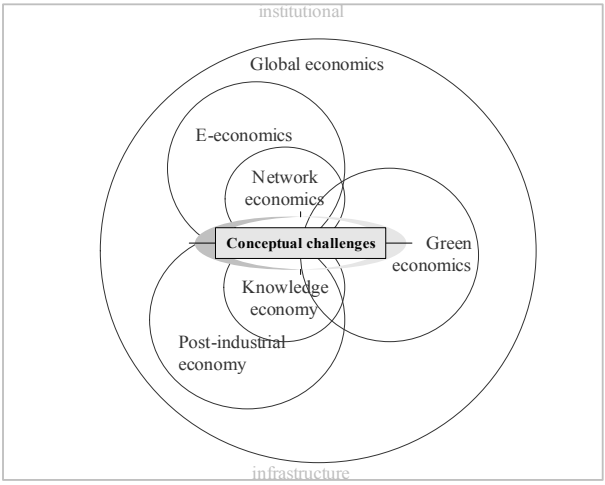

Fig. 1. The field of the conceptual challenges in the modern economic system
Source: compiled by the author

The core of the modern challenges consists of the synergy of interaction between different directions of economic development. For instance, one of the key issues of knowledge economy is intellectual property rights' protection, which is based on the increase in conditions of both development e-economy and poorly controlled global networks.

Another aspect of this problem can be seen through uncertainty growth, and consequently risk increase, which also leads to the impossibility of quality and reliable forecasts, the increase in costs of forecasting, the increase of the likelihood of risk coverage costs etc. All these issues lead to the appearance of the new categories such as "the era of bifurcation" (Grajevska, 2009) and "risk society" (Beck, 2009).

As a result, evolution of the global economic system is nonlinear, and it is accompanied by permanent bifurcations that are constantly increasing. This causes the main challenge of the modern economic science – fundamental imbalance between economic theory and business practice.

Related works. Many famous foreign and Ukrainian researchers have studied the issues of modern economic science challenges. For instance, among the experts on challenges of knowledge economy and post-industrial economy we can mention Pylypenko L., Yaremko I., Tyvonchuk O., Podolchak N., Volodina V., Dean A., Kretschmer M., Marshall J. N., Lefton M., Mills P. K., Solo R. A., Hirschhorn L., Gorkin A.P., Bottum A. L., Inozemzev V., L. Yankovska, Volchuk V., Oliynuk O. Butunez T., Pryimak V., Malyi I. etc. Variety of questions as to e-economics and network economics have been investigated by Albala-Bertrand J. M., Besana A., Trkman P., C. Paris, Sagiv T., Baporikar N., Foss N. J. , Moon M., Kit L., Geyez V., Galchunskuy A., Kravchuk I., Smirnov Y., Glushenko O., Holubnyk O. etc. The problems of green economics have been examined by Coffman J., Pollock J., Farid S. S., Sa V Ho, Kharkongor N. W., Atewamba C., Zahonogo P., Heinemann V., Kennet M., Shaimerdenova S., Bakirova K., Aliyeva A., Ternyik S. I., Sunyakevich I., Shevchenko O., Bubluk M., Prugara P., Ziabina Y. etc. Institutional aspects have been analysed by Kaufman B. E., Aydin D. G., Dinar G. B., Parada J., Richter R., Prevost B., Rivaud A., Maze A., Fujita N., Shiriaev I., Meador J. E., Sarah S., Kondaurova I., Kuzmin O., Sudorov Y., Kozuk V., Mazaraki A. etc. Immanent challenges of the modern econom ic system Pang J.-S., Sen S. U., Shanbhag V., Vinaja R., Yang Y., Gardoni P., Vogel R. M., N. Abu el Ata , Schmandt R., Bocanegra-Valle A., Otobe N., Afanasieva V., Ivanov L., Yanushkevych D., also Bazylevych V., Grajevska N., Gaidai T., Osetskyy V., Chukhno A., Bilorus O.,Bondarenko L., Verbizka I., Kravchul N., Vitlinskuy V. etc.

The Conceptual challenges of new economic formations

Knowledge economy and post-industrial economy. The knowledge economy has rapidly changed the basic laws and algorithms of the traditional economic theory: decreasing returns law have transformed into the law of

increasing returns since knowledge is the unique inexhaustible economic resource. The main challenge of this economic formation is coming from its subject, which is the knowledge as the product of the processed information.

Firstly, the total amount of information is doubling every year, which means that the number of databases is constantly increasing that causes the inability process information to be completed even using computer-based analysis tools.

Secondly, there is a problem of data redundancy that leads to inefficient usage of economic resources, especially time.

Thirdly, another challenge is verification of information and knowledge, which are used in a business activity, as long as a false information as the poor-quality resource can deface or make economic processes and operation implementation impossible.

In this case, economic relations should depend on the knowledge, as the economic resource, which is supported by the comprehensive study data and the economic agents' ability to critical thinking instead of original and unprocessed information. As a result, the educational process of specialists training in economics should be transformed from informative and educational directions into the critical and analytical.

For instance, a small Ukrainian company "SAMA", which produces household products, wants to research the business environment of the household products market in Ukraine. This research is an expensive service provided by consulting firms. An independent analysis of the market is also impossible due to the lack of some database access and inability to carry out some stages of marketing research (such as "work in the field"). In this case, selection of creative research methods and the process of searching for relevant and available information sources is more important than inside information gathering. Analysis of product market can be done by using indirect factors (dynamics of macroindicators, trends of complementary markets) and free secondary information that requires unconventionales approach and critical thinking.

E-economics and network economics. Electronic and informative features of the modern economic system have rapidly modernized traditional economic laws and principles: network development based on the principle "rich becomes richer," which eliminates the Pareto efficiency criterion; networks growth based on the preferential attachment model that is the opposite to the random attachment model; such formations are good at self-regeneration even if 80% of network elements are infected.

On the contrary to traditional economics, the synergy of interaction between all economic agents is the basis of network economics, whereas the network that consists of a single participant is impossible. This mechanism allows not only accumulating individual units as some kind of capital (human, client capital) but also creating new categories as the result of interaction between them (Radaev, 2003) (fig. 2):

- the sum of human capital units –> social + cultural capital,

- the sum of social capital units –> client capital;
- the sum of client capital units –> goodwill;
- the sum of social + client capital units –> administrative capital and so on.

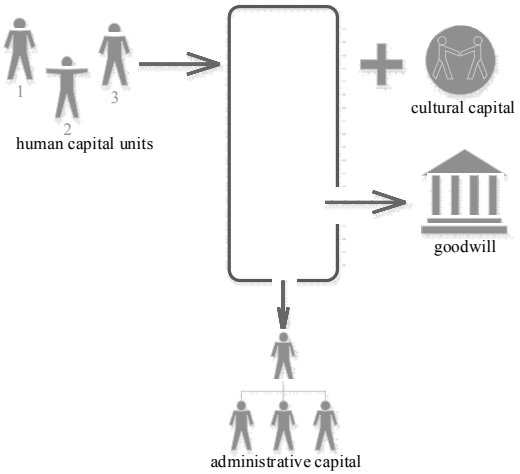

Fig. 2. The synergy from interaction between different types of capital
Source: compiled by author based on (Bourdieu, 2001)

There are key challenges for network economics:
- intellectual property protection in global networks;
- personal data security;
- regulatory and supervisory functions possibilities;
- emergence in the interaction system;
- dissonance between traditional and new types, forms and methods of economic activity.

Green Economics. Global environmental problems mean that the environmental aspect of business activity is considered as the key survey item in modern economic contacts in the form of externalities.

The main challenge of green economy consists of the consensus between environmental and economic efficiency. In other words, this poses the question: "Is society ready to choose health instead of economic benefits or the society would choose economic benefits instead of health?". If a business entity ignores its environmental responsibility and the increase in environmental efficiency, profits will grow with high probability (ceteris paribus). However, national expenditures focused on the elimination of environmental problems will reduce industry profitability by increasing overall costs, on the one hand. Decline in social transfers will drop the buying capacity, which also leads to industry profitability decrease.

As a result, this challenge means the conflict of economic agents' interests and the imbalance between personal and social marginal costs and benefits: social marginal costs aimed at the outcome of environmental pollution elimination are more than personal ones which means ignoring personal interest in the entire environmental responsibility.

Commercialization of environmental relations is the clue to the solution to this problem. As Pigovian tax and Coase theorem can solve the ecological problem partially, it is highly important to set the level of pollution, which enables the equality between marginal costs and marginal benefits (1):

$$MC = MB, \quad (1)$$

where MC – marginal costs; MB – marginal benefits.

According to the specificity rule, the main goal of environmental regulation, in terms of economic components, is minimization costs of caused by pollution (marginal costs) instead of pollution reduction. The system of total emissions control is inefficient and costly. That's why, the assumption of a minimum level of pollution will save financial resources and time resources of the government (marginal benefits), while business entities, whose activities generate huge pollution should be the object of governmental control.

Institutional infrastructure. Development of the modern economic system is impossible without appropriate institutional support. The general definition of the institute, according to T. Veblen, means the complex of habits, traditions and behaviour norms that have been formed in the society. For instance, they can be:

- in network economy – Institute of Social Capital;
- in knowledge economy – Institute of Education;
- in green economy – Institute of Environmental Control.

Institutions form the relevant infrastructure and mechanisms of economic agents' activity. Meanwhile, institutional support discrepancy can cause significant difficulties in doing business, what is more important for mega levels of economic systems.

For example, the countries of Central and Eastern Europe are characterised by low level of trust in the society, which leads to low level of social capital, while Scandinavian countries are characterised by extremely high level of its categories. This leads to delays in international business, due to tedious partner's audit, compulsory insurance of all potential risks, etc, which significantly reduce the efficiency of all economic transactions. For instance, the Swedish "IKEA International Group", one of the largest retailers selling furniture and home furnishings, refused to enter Ukrainian market, when it was offered to pay a bribe to local authorities.

What is interesting, the institute of corruption in Scandinavian countries was eliminated, due to legal and regulatory changes and also modernization of the way of

thinking. Despite the lack of anti-corruption laws and special control institutions, Scandinavian countries and New Zealand are constantly taking the first places in Transparency International ranking. At the same time, the institute of corruption in Ukraine is an inherent characteristic of social relations at all levels, which helps to develop shadow economy, tax evasion, excessive income spread etc. As a result, Ukrainian consumers do not have the opportunity to buy convenience goods of European quality at the medium price, which reduces the level of the ir social welfare.

Immanent challenges of the modern economic system. Risk and "the black swans" (Taleb, 2007) are inherent characteristics of the modern economic system, which lead to rapidly changes in the economic activity based on the dialectical analysis and bifurcations. According to the second law of dialectics (unity and struggle of contradictions), risk means the probability of both costs and benefits, forcing economic agents to take a certain level of risk.

However, the risk, as an inherent feature of the modern economy, cannot be avoided, which leads to the "bubbles" development ("Dot-com bubble" in 1998 and "financial bubble" in 2008) and the global economic crisis. However, under bifurcation theory, even crisis cannot be considered as the only negative phenomenon because crises perform the function of "creative destruction" (Schumpeter, 1942) and rehabilitation, which lead to higher equilibrium level (Fig. 3).

In this context, the practice of risk elimination, so widespread among domestic business, does not work or even is impossible. According to M. Duba, "every risk avoidance and minimization lead to the effectiveness reduction of the company as risk management requires additional costs and resource reservation" (Duba, 2008). However, motivation for risktaking is according to the Pareto principle, which means that 20% of chaos explains 80% of economic development (Kuzmin et al., 2011).

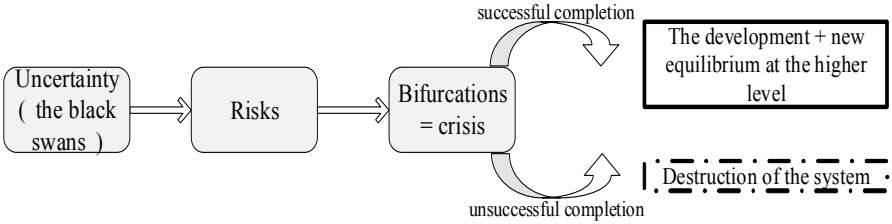

Fig. 3. The role of bifurcations in economic relations
Source: compiled by the author

This approach leads to the search for new ways of risk management optimization that means using minmax and maxmin strategies (minimization of maximum losses or maximisation of minimum gains) and the conscious risk taking in the range of risk appetite (fig. 4).

Another way of dealing with this problem is the use of process approach which leads to high flexibility and adaptability of the management system, in particular, risk management system, simplifies information exchange and gives priority to the processes with high degree of added value and provides for risks leveling (Kobets and Yatsenko, 2016).

Globalisation and integration are also important factors of the economic system development in the XXI century. International economy, which is now transformed into a global one, is characterised by entwinement and interdependence of all the countries in the world (Grajevska, 2009). These processes lead to emergence, which is a phenomenon whereby larger entities arise through interactions among smaller or simpler entities such as the larger entities exhibit properties the smaller/simpler entities do not.

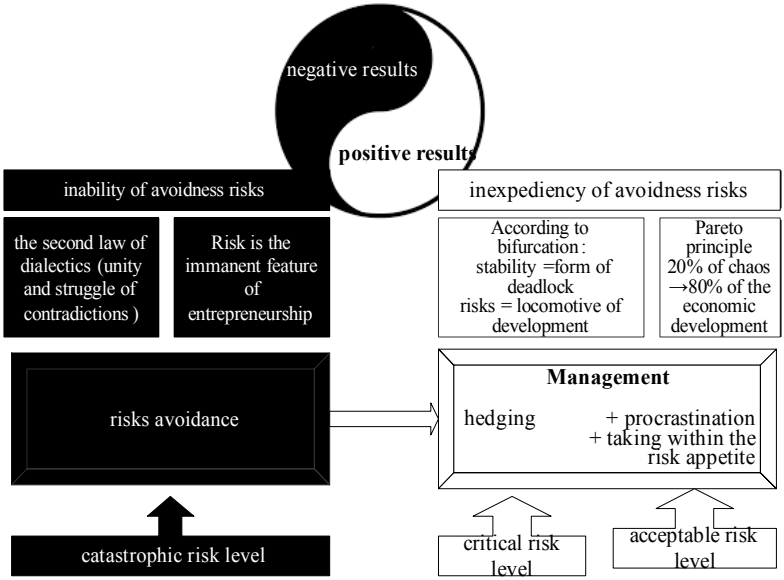

Fig. 4. The dualism of the risk category

Source: compiled by the author

Conclusions. All the things considered, it should be mentioned that modern economic system development is faced with a wide range of challenges, characterised by synergy. All of the challenges can be divided into two groups, whereas economic system is developing simultaneously in different ways:

1. Immanent challenges:
- uncertainty and risk growth;
- challenges of globalisation and integration;

2. Conceptual Challenges:

2.1. E-economy and network economy

- intellectual property protection in global networks;
- personal data security;
- regulatory and supervisory functions possibilities;
- emergence in the interaction system;
- dissonance between traditional and new types, forms and methods of economic activity;

2.2. Knowledge economy and post-industrial economy

- snowballing information increase;
- data redundancy;
- difficulties of information verification;

2.3. Green economy

- complexity of commercial environmental monitoring and control.

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CHAPTER II

BUSINESS STRATEGIES IN A GLOBALIZING WORLD

Blecharz P., Stverkova H.

USING OF THE MODIFIED FTA METHOD FOR FINDING A COMPETITIVE ADVANTAGE

This chapter is focused on using the modified FTA method for finding competitive advantage. First, it integrates useful tools and practices for modern product development according to customers' requirements and satisfaction. The authors synergistically transpose FTA methods for possible improvement in development of white goods, examples are refrigerator and washing machine.

Introduction. Nowadays, the word "quality" expresses the key term both from the point of view of organization and customer perspective. However, it is a question, which subject under this concept is. Of course, there are many definitions of quality in literature. These definitions are intended more for professionals working in this field of quality or very close to it. An example can be a standard definition: "Degree to which a set of inherent characteristics of an object fulfills requirements (ISO 9000, 2015, p. 8). Word "inherent" means here existing inside, in an object.

Certainly we will find many other definitions of quality: for example "Quality is fitness for purpose" (Juran, 1998). Juran's definition of quality is quite simple and popular one. However, it doesn't directly convey the indepth meaning of quality needed for managers who are to decide on selecting the right course of action.

The definition of quality will surely vary. The basic perspectives are two: producer's view and customer's view. Quality has two dimensions, the level and the consistency. Under the quality level area, it is possible to imagine the ability of a product or a service to perform functions, e.g., total durability, reliability, accuracy, repairs and other valued attributes. Although some of the them cannot be measured objectively, from the marketing point of view it is necessary to measure quality according to buyer's perception. The second dimension is consistency. It means, it should comply with certain standards, it has no defects and it has consistent level of performance (Kotler et al., 2007; Taukeshi, 1983).

Product quality is rapidly becoming an important competitive issue. In addition, several surveys have voiced consumers' dissatisfaction with the existing levels of quality and service of the products they buy. David A. Garvin (1984) of the Harvard Business School looks at five major approaches to defining quality and addresses the empirical relationships between quality and the variables.

Five major approaches to definition of quality are as follows: (1) the transcendent approach of philosophy; (2) the product-based approach of economics; (3) the user-based approach of economics, marketing, and operations management; and (4) the manufacturing-based and (5) value-based approaches of operations management.

The Transcendent Definition is presented by this example: "Quality is neither mind nor matter, but a third entity independent of the two ... even though Quality cannot be defined, you know what it is" (Pirsig, 1974, pp. 185-213).

Secondy, the product-based definition presents: "Quality refers to the amounts of the unpriced attributes contained in each unit of the priced attribute" (Leffler, 1982, p. 956).

The third one, the user-based definition states: "Quality consists of the capacity to satisfy wants" (Edwards, 1968, p. 37) or "Quality is any aspect of a product, including the services included in the contract of sales, which influences the demand curve" (Dorfmanand, 1954, p. 831), or "In the final analysis of the marketplace, the quality of a product depends on how well it fits patterns of consumer preferences" (Kuehn and Day, 1962, p. 101).

The fourth, the manufacturing-based Definition: "Quality is the degree to which a specific product conforms to a design or specification" (Gilmore, 1974, p. 16).

The fifth and last one, the value-based definition: "Quality means best for certain customer conditions. These conditions are: (a) the actual use and, (b) the selling price of the product" (Garvin, 1984).

What is the real meaning of a "good product"? Or what is the meaning of this connection to these products – what does high-quality washing machine, iron or TV set mean? This text deals with the quality from the custome perspective. The authors present the results of their research, which gives the answer to these questions. The authors also focus on the concept of high-quality product according to the user-based Definition see more, for example, in (Blecharz & Stverkova, 2011).

Identification of the critical parameters includes analysis and experiments. This sometimes takes a form of brainstorming or similar approaches. More powerful are relational networks such as fishbone cause-and-effect diagram (see, for example Shiba, Graham, & Walden, 1993). The methodology that has been found to be most powerful is the combination of fault tree and failure models and effects analysis. Functional trees, fault trees and failure models and effects analysis all provide essentially the same analysis. However, experiments have demonstrated that it is beneficial to do all three. Each induces a different psychological response, and the union of the three provides the most complete insight to guide the design further.

Functional tree is used to help guide the design of a new product, with an emphasis on cost-effective functionality. Fault tree is top-down analysis of faults, thus, it is made up of negative statements. In Japan, the reverse nature of functional tree and fault tree is captured by abbreviations: FTA – fault tree analysis, and R-FTA – reverse fault tree analysis. Functional relationships and fault relationships are always shown as tree, to best display the relationships. Therefore, in the research we used the modified Fault Tree Analysis (FTA) focused on two white goods analyzed from the customer perspective of quality perception.

Theoretical backgrounds. The basic idea for identifying the meaning "quality" for consumers will be using the Fault Tree Analysis (FTA). Fault Tree

analysis was introduced by H. R. Watson in the early 1960s as a tool to perform safety evaluation of a complex system. FTA was first introduced by Bell Laboratories and is one of the most widely used methods in system reliability, maintainability and safety analysis. Engineers from Bell Telephone Laboratories discovered that these methods could be used for analyzing the logic that results from component failures, describing the flow of logic in data processing equipment.

The process for structuring fault trees was further developed by David Haas, from Boeing Company in Seattle, Washington. Nowadays, it is a deductive procedure used to determine various combinations of hardware and software failures and human errors that could cause undesired events (referred to as top events) at the system level. The analysis via fault trees is a deductive method. So it is logical and diagrammatic method to evaluate the probability of an accent resulting from sequences and combinations of faults and failure events. Thus, fault tree is a widely used analytic tool for analysis of societal risks, often nuclear, chemical, engineering related.

The principle of FTA is that faults are described and drawn hierarchically, i.e., at the top level there is always the main fault, which branches in the second level into all possible causes of this main fault. Each fault at the second level branches, analogically, into other possible causes in the third level (Clausing, 1994).

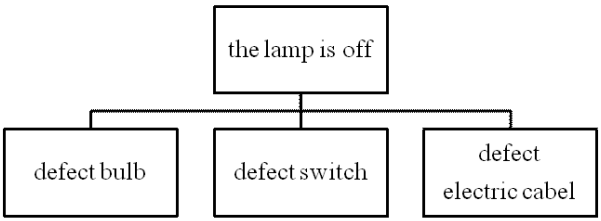

Figure 1. The Fault Tree – the table lamp

Source: own

We move down in the hierarchy until we get to the root of the main cause of the fault. The final number of levels is determined by the composition of the surveyed object. The whole situation is demonstrated in Figure 1. FTA is a well known quality method described in many professional texts, e.g. (Peace, 1993).

By modifying the FTA method we can create the hierarchical tree for products and their main quality characteristics (we call it the quality tree or the quality function tree). At the top level will be the general product, at the second level product groups (e.g., white goods) and at the third level the specific type of the product (white goods-washing machine), see Figure 2.

Of course, if we wanted to include into this tree all the products, the picture would be much larger and more complex. To understand the principles, this demonstration is enough.

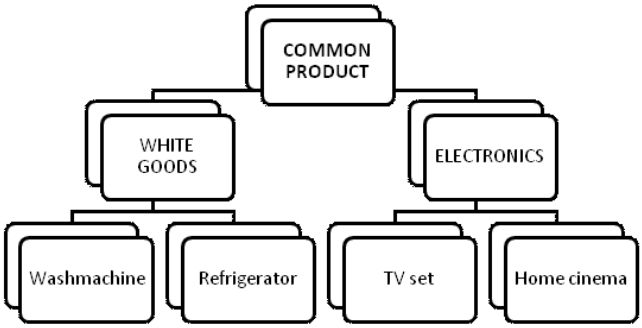

Figure 2. The quality tree and its product levels
Source: own

Next, data collection can be made for each individual product type. This can be done by asking customers, when each respondent writes at least 5 most important characteristics of the quality (requirements) for individual product (maximum 10). When processing the data, which will be more time-consuming, it is necessary to "translate" the requirements that are in other words, but they mean the same (synonyms) – to the requirements expressed by the same verbal expression. It will also be necessary to eliminate duplicity, nonsensical requirements and merge some pairs or triples of requirements into one general term. With simple statistics (frequency of repeated responses) we find the most important (the most frequent) attributes of quality for each product, for each group of products and finally for the general product.

However, there is one more important thing to mention. Customers' needs are prioritized so that the team can concentrate on the vital few needs that will make the product more successful. Customer's requirements can have different character. It is helpful to do a quick grouping of the needs. Organization of the needs about the affinity groups gives great insight into a total set of needs. This understanding helps refine the statement of needs. Therefore, it is possible to compile and organize customers attributes to some separated groups of attributes. Characterization of the needs helps concentrate efforts in the area that will make the company product more competitive. We will use segmentation of customer's requirements according to Japanese expert Kano. In 1984 Kano has developed a very useful diagram for characterizing customer needs. According to his theory, for some customer requirements, customer satisfaction is proportional to the extent to which product or service is fully functional. Noriaki Kano divides customer requirements into 3 groups:

1. Must have – M.
2. Linear satisfier – L.
3. Delighter – D.

"No matter how well we do characteristics "must have", the customer accepts it as something that is normally expected. On the other hand, if we do not meet the need sufficiently, the customer becomes dissatisfied and unhappy. The second type of customer need is "linear satisfier". The better we do, the better customer likes it. Last type of customer need is the "delighter". If we do not accomplish it, it does not cause dissatisfaction. Simply, the delighter is not expected. Strong achievement in design delights the customer very much" (Clausing, 1994, p. 122-123).

Figure 3. Development of the Kano model
Source: Customer Dimension Analytics (2017)

Horizontal axis in this figure indicates how fully functional a product or a service is. The vertical axis indicates how satisfied the customer is. The line going through the origin at 45 degrees, represents the situation in which customer satisfaction is directly proportional to how fully functional product/service is. In other words, it represents the situation in which the customer is more satisfied with a more fully functional product/service and less satisfied with a less functional product or service.

The Kano analysis helps identify the unspoken needs before prioritization. It is necessary to realize that the customers' expectations and needs vary over time, so the companies must be linked to a multi-generational project plan and should count with the Alfa generation.

Therefore, in any research we have to consider that the customer does not tell us requirements, which belong to the M-type, because he/she automatically thinks about their 100% fulfillment. So, we cannot expect that the customer will

inform us about the safety against the electric shock at a washing machine. With the fulfillment of this condition he/she calculates implicitly, because regulatory authorities would not allow placing such a product on the market.

Similarly, the customer does not tell us the requirements, which belong to the D-type, because he/she does not expect the fulfillment.

So, when researching customer preferences we only determine the requirements, which belong to the L-type. According to the level of performance, they linearly affect satisfaction-dissatisfaction of customers. An example of such characteristic is consumption of car fuel.

But it is necessary to realize one thing. In the context of technical development and changing customer requirements changes also the categories of requirements over time. The characteristic, which today belongs to the D-group, tomorrow can belong to the L-group or the day after tomorrow even to the M-group. An example can be the camera built into mobile phone. First, it was something, what the customer did not expect and he/she was pleased to see (D-type). Gradually, this requirement has stabilized and customers have begun to require it, i.e. it moved into the L-category and maybe now it is moving into the M-category.

Research and data analysis. In January and February 2017, the research was performed in 3 biggest Czech cities (Prague, Brno, Ostrava). Altogether 300 respondents were interviewed. Each respondent had to list 5 most important characteristic of quality (respectively, 5 most important requirements) for each of 2 products of white goods, i.e.:

- The washing machine.
- The refrigerator.

These products of white goods belong to the symbols of the consumer society and to necessary household equipment. Nowadays, with the refrigerator is equipped almost each household in the developed world. Refrigerators are available in a number of different sizes and designs, but their basic principle is the same: they are insulated heat pumps that in their interior keep lower temperature than the air temperature is. This slows down the rate of bacterial growth and helps keep food fresh longer.

Refrigerator is one of household appliances, which partakes most of energy consumption, on average 20% of the total household consumption. Data on the energetic label are important. It is also necessary to follow the climatic classes of refrigerators and for what kinds of space they are appropriate. Testing evaluates the cooling, freezing, heat stability and energy consumption. Also important is the equipment of refrigerators, e.g., more thermo regulators, height-adjustable shelves, sensitive food zone, non-frost system etc. Refrigerators work almost continuously and they should do so in the most discrete way, therefore, evaluation is important in terms of sound and vibration, noise level etc.

The second essential instrument in most of the households is washing machine. The offer of washing machines is wide, at first sight, washing machines

look the same, therefore, for customers it is necessary to think about the criteria that will make the decision easier. The consumer is interested in fulfilling the basic functions and it is washing. For washing, it is important to be effective; interesting is also the connection between washing quality and duration of the washing cycle. Other aspects are washing trommel capacity, energy and water consumption. Similarly with refrigerators, it is necessary to consider the noise level. Reportedly, washing machines are the loudest appliances in households. The significant criterion is their operating.

For both types of household appliances, the refrigerator and the washing machine, consumers also evaluate reliability and working life. The average working time of a washing machine can be taken as the time until such a defect that is for the owner unprofitable to repair due to the costs of purchasing a new washing machine. It is also possible to apply the some to logic a new refrigerator.

Characteristics of the M-type have to be automatically fulfilled and they are not included in to the research. Washing machine and refrigerator fulfill safety requirements and perform other basic functions (the washing machine washes and the refrigerator cools).

The initial data processing was performed in a way, as described previously. It means elimination of duplicity, identification of synonyms and merging of some definitions into one more general term. The total results are shown in Table 1. For better transparency are given only 5 requirements with the highest frequencies.

Table 1

Customer's preferences for white goods

Number/order of therequirement	Washing machine	Frequency	Refrigerator	Frequency
1	Water and energy consumption	222	Energy consumption	244
2	Easy maintenance	201	Trouble-free operation	190
3	Trouble-free operation	175	Easy maintenance	170
4	Noise level	152	Appropriate internal structure (Shelf arrangement etc.)	130
5	Easy operation	143	Aesthetic appearance	121

Source: own

For washing machine, 222 respondents of 300 identified as the important requirement water and energy consumption, for the refrigerator 244 respondents, who identified energy consumption as the most important requirement. Easy maintenance is also the preferred requirement for both products, for washing

machines it is on the second place and for refrigerator on the third place. This is due to the difference in the use of both products, when maintenance the washing machine is more often (cleaning the filter etc.) than the maintenance of a refrigerator (e.g., cleaning the interior). For both products also important is trouble-free operation, for washing machine it is on the third place, but of for refrigerator it goes second. In case of troubles with a washing machine, we can wait a few days for the repairman, but troubles with refrigerator can practically mean immediate food spoilage, outgoing water on the floor and other troubles (e.g., bad smell).

Further requirements to both products are different. For washing machine noise level is important, because high noise level at operating can disturb sleeping children, neighbors etc. The last important element for washing machine is easy operation. Many users do not use some of the functions of a washing machine just because the settings are too complicated. But with easy operating they would like to use them.

For refrigerator is important the internal structure (internal design) so that the user could efficiently use as much capacity as possible, but also food storage should be easy and intuitive. The last parameter of the refrigerator, which users place emphasis on, is aesthetic appearance (external design). It has its logic, because refrigerator is also "a piece of furniture" and in general it contributes to pleasant ambience in the kitchen.

In Table 1 words in italic describe the common customers' requirements for both types of white goods. If we consider water also as energy resource, we get the 3 most important parameters for white goods:

- Energy consumption,
- Easy maintenance,
- Trouble-free operation, meaning reliability.

Now, when we remove from Figure 2 only the part for white goods and we complete it with customer preferences, we get "the quality tree" for white goods (see Figure 3).

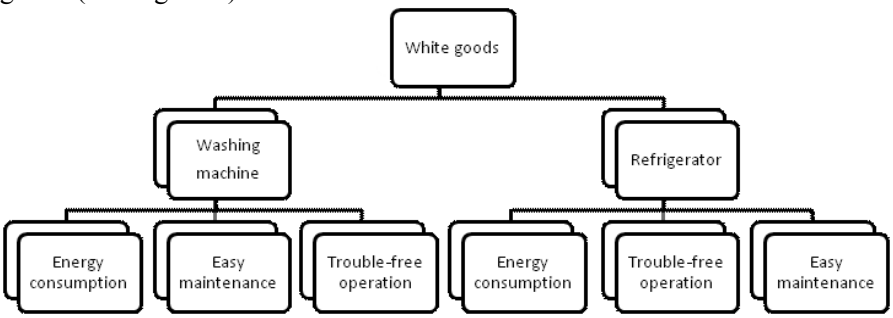

Figure 3. Quality (function) tree for white goods

Source: own

From the research follows our selection of washing machine or refrigerator. The three fundamental parameters for both types of household appliances are listed above. For washing machine noise level and easy operation are also essential. For proper selection it is necessary to involve washing trommel capacity, size of a washing machine, opening angel, availability and brightness of buttons.

For refrigerator also (besides the three fundamental parameters) necessary are: the climatic class, the usable refrigerator volume – especially the storage volume, the non-frost system for easy maintenance, the number of compressors and thermoregulators.

Analogously, it is possible to do the research for any group of products/ product and the producer can thus obtain invaluable information, which can provide a competitive advantage. In addition to M-type requirements that all producers on the market have to fulfill, they will focus on L-type requirements, which fundamentally affect customer satisfaction. By improvement of these requirements above the level of competition the producer can get a decisive competitive advantage, because most customers will positively respond to such product description: extremely low energy consumption, easy or no maintenance and 100% reliability.

If producer will further divide these parameters into lower and lower levels, it will go to individual subfunctions and then to partial elementary parameters of individual components of a product. An example can be energy consumption of a washing machine that will be divided into water consumption and electrical energy consumption etc. So we create "the function tree" for each main function of the product.

Conclusions. This text was dealing with the finding of quality key requirements to products, respectively for selected group of products. For our example were selected two products of white goods. For the systematic approach in searching and forming appropriate quality attributes was chosen the modified FTA Method (the function tree). We identified 3 key requirements for white goods products that most of the customers prefer. The producer can also solve each of these requirements systematically, again? by the modified FTA Method, i.e. using the quality (function) tree.

Quality has become the competitive necessity in the 21st century. Product quality is very important for companies and also for consumers. Customers are ready to pay higher price, but in return, they expect high-quality products. If they are not satisfied, they will purchase from competitors and pass their negative experiences. Singe customers today voluntarily spread about their shopping experience.

Nowadays, it is important to focus on customer needs and product quality, because international products are available at the local markets all over the world and if domestic producers do not improve their products' quality, they will not survive at these market.

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LINKAGE OF UKRAINIAN WHEAT PRICES WITH WORLD CRUDE OIL PRICES

Globalized biofuel polices applied in developed countries affect agro-food prices in the countries which are not producers or consumers of biofuels. The goal of this paper is to evaluate the linkage between world crude oil prices and Ukrainian wheat prices. Empirical analysis was based on monthly prices, 2005-2016. The results of the research confirm the existence of such a relationship, although long-run relationship between crude oil prices and Ukrainian wheat prices is not proven. Granger causality test indicates that 2005-2016 Brent oil prices were the leading indicator for Ukrainian wheat prices. Moreover, the variance error decomposition shows that around 10% of the total variance of Ukrainian wheat price may be contributed to the shock in world oil prices.

Problem statement. The last decade witnessed an extraordinary growth in the world biofuel production. According to FAO-OECD Outlook (OECD, 2015), the use of coarse grains for biofuels had almost tripled from 2004 to 2014. Almost 40% of additional coarse grains consumed over the past decade were processed for biofuels. Over 80% of the total biofuels is produced in the form of ethanol (grains, sugar cane) and the rest is biodiesel (mostly rapeseeds). As results from the above trends, there was an increase in the level and volatility of world agri-food prices (Abbot, 2013; Wright, 2014).

Significant rise in biofuel production and utilization strengthened the linkage between grain prices, and biofuel and crude oil prices (Tyner, 2010). However, the nature of this mechanism is not clear yet. Most of the research is based on the US, Brazil and the EU data, where production and consumption is the highest. Therefore, the question is: to what extent grain prices in the countries which are not being producers or consumer of biofuels are linked to oil prices?

One of such countries is Ukraine with its great agricultural potential and significant share in the world grain production. Ukraine still does not use biofuels at domestic market and does not has its own policy supporting it, even though the legislative basis to produce biofuels in Ukraine is already available.

Review of recent publications. The main factor underlying price linkage between agricultural and crude oil markets is physical demand for grains in biofuel production and physical demand for oil from agriculture. The latter is related to cost side (input) and is rather stable over time. Modern agriculture uses oil products to fuel farm machinery, for transportation and heating. Oil is also used as input in agricultural chemicals (Potori, Stark, 2015).

Demand for grains in biofuels production seems to be increasingly more important in explaining increased price linkage observed in recent years. Fast expansion of ethanol and biodiesel production was caused by active policies in

developed countries whose goal was to increase biofuel share in the domestic fuel use. They implemented various biofuel policies based on such incentives as mandatory blending, tax reductions, and investment subsidies. Biofuel policies were the expected response to a growing energy security and environmental challenges. Other factors increasing the links between oil and grain markets are: economic growth in developing countries, MTBE ban in the US, adoption of flex-fuel engines for new cars in Brazil or alternative use of crop production surpluses (Dawe, Doroudian, 2012; Figiel, Hamulczuk, 2014; McPhail, Babcock, 2012).

The literature review indicates that, in recent years, changes in world oil prices have influenced agricultural crops production, and prices (Abbot, 2013; Tyner, 2010; Zilberman et al., 2013). The nature and strength of this relationship are not clear, though. The review of most of recent publications on agricultural-oil price linkage is presented in (Zilberman et al., 2013). According to it, introduction of biofuels had a slight impact on commodity-food prices. In the opinion of the authors biofuels have not been the most dominant contributor to the recent food-price inflation and different biofuels have different impacts on food prices. Bakhat and Wurzburg (2013) indicate that increased biofuel use did indeed create new links between prices of foods and crude oil, especially for those food products that have been used to produce biofuel. According to Tyner (2010) and Hamulczuk and Klimkowski (2012), correlations between prices of grains and oil in the USA and Poland have changed from negative to positive along with biofuel introduction.

Saghaian (2010) investigated the question whether oil-ethanol-corn linkages have a causal structure by which oil prices affect commodity prices, and through these links, instability is transferred from energy markets to already volatile agricultural markets. Garzor and Kablamaci (2014) examined the interrelationship between oil and agricultural commodity prices in the light of risk perceptions and uncertainty that shape the global financial market.

Unresolved issues. Taking into account the above research of the problem, this paper is focused on statistical investigation of the linkages between world oil prices and wheat prices at Ukrainian market. The analysis is conducted on the basis of monthly price series. Many scientists have agreed that due to biofuel market development, the relationship between prices for agricultural commodities and crude oil will be getting stronger. However, individual research results differ depending on the applied methods. In Ukraine grains are produced mainly for food, feed industry and for export, and they are not intended for processing as biofuels. The literature review indicates that grain prices in Ukraine follow world market prices (Gotz et al., 2012; Goychuk, Meyers, 2013; Kobuta et al., 2012). If the world grain prices are related to crude oil prices, it may also be expected there is a linkage between Ukrainian grain prices and crude oil prices. Contrary to majority of other studies, the paper concentrates on the situation where even in the absence of domestic biofuel sector, the linkage between crude oil and

agricultural commodities' prices might exist due to dependence of Ukrainian market upon the global grain market.

The research objective. Therefore, the aim of this paper is to study the possible links between domestic grain prices and world oil prices. Our paper is devoted to the world wheat market where Ukraine is 7th world exporter.

Key research findings.

Possible links between Ukrainian wheat prices and world oil prices. Ukraine has great potential for crop production (favorable agroclimatic conditions, high-quality land, and cheap labor force). Wheat accounted for 40-50% of Ukraine's cereal crop production in 1995-2015, 90-97% in this production in the same period was winter wheat. Ukraine is a net exporter of grains. In 2014/2015, the share of wheat exports amounted to 45.5% of production. In the last decade, wheat export increased more than twofold (Schmitz, Meyers, 2015; Ukrstat).

Biofuel production in Ukraine, in particular ethanol, does not play an important role, despite the adoption of the law promoting production and use of biofuels in 2009 (Law…, 2009). It was intended to stimulate biofuels production and use. It assumes an increase in alternative fuel share to 20% of the total fuel consumption in Ukraine until 2020. However, up to date production of transport fuels has not become widespread.

Despite the fact that biofuel production in Ukraine is not widespread, oil prices influence domestic grain market due to a large share of wheat export at the world market. Empirical research mentioned earlier, indicate that Ukrainian prices adjust to the world and EU grain prices. As a result, indirect link between Ukrainian wheat prices and world oil prices via world wheat prices may exists.

Data and methods applied. The analysis of the relationship between Ukrainian wheat prices and crude oil world prices described in the article, used monthly series from January 2005 to June 2016, according to FAO and the World Bank. Ukrainian wholesale wheat prices (grade III) are expressed in US dollar per tonne, whereas oil world prices in US dollar per barrel. Figure 1 shows both series in the analyzed period as well as their ratio.

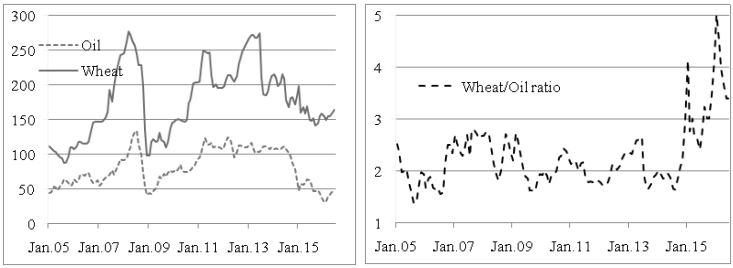

Figure 1. Ukrainian wheat prices (USD/tonne) and world oil prices (USD/barrel) and their ratio, developed by the authors based on the FAO and World Bank data

To analyze different aspects of price linkage between Ukrainian wheat and oil, several methods were applied. The Augmented Dickey-Fuller unit root test (ADF) was used in order to test stationarity of each series. The null hypothesis states that time series is non-stationary (has unit root); the alternative is that it is stationary. ADF test statistics is based on tau-statistic of coefficient φ from OLS estimation of the following formula (Enders, 2012):

$$\Delta y_t = \alpha_t + \varphi y_{t-1} + \sum_{i=1}^{p} \delta_i \Delta y_{t-i} + \varepsilon_t, \quad (1)$$

where: y_t – the analyzed price series; α_t – deterministic term (constant, trend); p – the number of lags ensuring white noise properties of random component ε_t, δ_i – coefficients describing the short-run persistence of Δyt.

Hon-stationary time series are co-integrated if a linear combination of them is stationary I(0). To test the existence of long-term relationship of series the Engle-Granger cointegration test (E-G) was applied. It is based on the following regression (Enders, 2012):

$$y_t = \beta_0 + \beta_1 t + \beta_2 x_t + \varepsilon_t, \quad (2)$$

where: x_t, y_t – variables tested for cointegration; $\beta_0, \beta_1, \beta_2$ – structural parameters; ε_t – residuals. The variables x_t and y_t are co-integrated if the residuals ε_t are stationary. To verify this assumption, we can apply equation 1 for residuals from equation 2.

Further analysis was performed with the use of Vector Autoregressive Models (VAR). The basic form of the VAR model seems to be as a follows:

$$x_t = A^0 d_t + \sum_{i=1}^{r} A_i \, x_{t-i} + \varepsilon_t, \quad (3)$$

where: $x_t = x1_t, \ldots . x_{mt}{}^{\mathrm{T}}$ is a vector of observation on the current values of the variables; $d_t = d_{ot}, \ldots . d_{kt}{}^{\mathrm{T}}$ – is a vector $k + 1$ of deterministic components of equation; A_0 – is a matrix of parameters in the d_t, vector variables; A_i – is a matrix of parameters in the delayed variables of a vector x_t, where maximum lag order is equal to r; $\varepsilon_t = \varepsilon_{1t}, \ldots . \varepsilon_{mt}{}^{\mathrm{T}}$ – vectors of the model equation residuals (Enders, 2012).

Vector of the model equation residuals should satisfy assumption (zero mean, constant variance, absence of autocorrelation), while covariance between residuals of the individual equations can be different from zero. The lag order (r) was chosen using AIC criterion. This causal impact between variables was summarized with impulse response functions (IRF) analysis and variance error decomposition (VED).

Preliminary empirical analysis. Due to some nonlinearities, the analysis was based on logarithmic data. In the first step, stationarity of price series was tested with the use of ADF test. The following values of the test statistics (*tau*) were obtained for model with a constant (equation 1):

- for logarithmic of price series levels: l_wheat – -2.46, l_oil – -2.45;
- for first differences of price series: dl_wheat – -8.17, dl_oil – -7.73.

The critical value *tau* = 3,398, thus the null hypothesis was rejected for the first differences of price series, which leads to the conclusion that all price series are integrated in order one I(1). The use of the ADF test for seasonally adjusted data does not change the final outcomes.

To analyze the nature of the relationship between wheat prices in Ukraine and world oil prices, the existence of the so-called long-run equilibrium relationship (co-integration) was tested. To test it, the Engle-Granger cointegration test was applied (Table 1). The results obtained for the model with a constant, and with a constant and a trend allow us reject the null hypothesis of cointegration. P-values are higher than the critical ones (0.05 or 0.1). This indicates that in the long run, there is no significant force to push prices towards a common path. Similar results were obtained for Poland by (Hamulczuk and Klimkowski, 2002). The absence of co-integration might be caused by the fact that wheat, contrary to corn, is not the main grain used for ethanol production. Lack of co-integration in the series may be caused also by the fact that the magnitude of interaction varies over time. In 1995-2014, the Oil/Wheat price ratio varied between 0.5-2.8, whereas since 2015 it has shown a strong upward trend (Figure 1). We may conclude that in the period of low crude oil prices, the linkage between oil and grain prices may change (weaken) as the incentives for using grains for fuel production are negligible.

Table 1

Engle-Granger co-integration test results

Specification	Model with constant: $l\_wheat_t=2.31+0{,}65*l\_oil_t+\varepsilon_t$	Model with constant and trend: $l\_wheat_t=2.31+0.61*l\_oil_t+0.003*_t+\varepsilon_t$
Estimated φ	-0.095	-0.127
Tau-value	-2.121	-2.494
P-value	0.465	0.523

Source: authors' calculation.

VAR modeling. Stationarity and cointegration test results indicate that variables are integrated in order one, but they are not co-integrated. Therefore, further analysis was based not on VECM on levels, but on the VAR model estimated on the first differences. The estimated model is presented in Table 2. The results allow us conclude about Granger causality between the series of oil and wheat. Assuming the 0.01 significance level, it can be said that world oil prices Granger-causes Ukrainian wheat prices. It means that the past changes in oil prices make it possible to predict current changes of wheat prices. Opposite interactions are significant, however, only at the 0.1 significance level.

Table 2

VAR estimated results (based on first differences of natural logs – ld)

Variable	Coefficient	P-value
Model for Ukrainian Wheat		
dl_Wheat_1	0.282	0.001
dl_Oildubai_1	0.212	0.003
Model for Crude Oil		
dl_Wheat_1	0.162	0.087
dl_Oildubai_1	0.352	0.000

Source: authors' calculation.

In the next step, impulse response functions (IRF) were calculated to measure the magnitude of response to the impulse from one standard deviation of random disturbance term. The Granger causality results were taken into account for ordering of variables. The results shown in Figure 2 (left), indicate that the cumulative response of wheat prices for 1% change in oil price is 0.44% after 3 months and 0.57% after 6 months from the shock. The aggregate reaction of oil prices on 1% shock in wheat prices is weaker and constitutes 0.36% after 6 months.

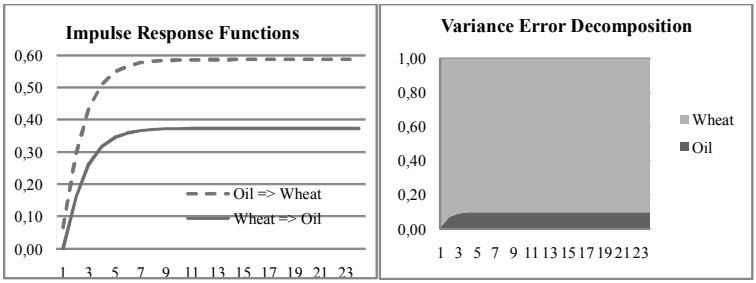

Figure 2. Cumulative impulse response functions for oil and wheat prices (left) and variance error decomposition for wheat prices (right), developed by the authors based on the FAO and World Bank data

Variance error decomposition shows the share of information each variable contributes to the other variables in the VAR model. Figure 2 (right) indicates that the shocks in oil prices explain 9.7% of the forecast error variance of wheat prices.

VAR models can be used also for forecasting purposes. The obtained results indicate that prices in one year time horizon may fluctuate around 150 USD/t (wheat) and 50 USD/bbl. (Brent oil).

Conclusions. A literature review indicates the importance of oil market in determination of agricultural and food markets. However, conclusions about the

strength of such an impact vary among the researchers, due to differences in the analyzed markets, data, and time periods. The crude oil-wheat linkage in Ukraine exists despite the lack of biofuel production in Ukraine. The linkage between Ukrainian wheat prices and world crude oil prices is indirect via European and world wheat prices.

The results presented in this paper point to the correlation between analyzed prices, even though wheat is not the main grain used for biofuel production. The Engle-Granger cointegration test did not confirm the long-run equilibrium relationship between Ukrainian wheat prices and crude Brent oil prices, which indicates that the linkage between these prices is not very strong. In 2005-2016 causality runs from Brent oil prices to Ukrainian wheat prices. Applied IRF based on VAR models, confirmed that wheat prices in Ukraine significantly respond to crude oil price changes. Moreover, variance error decomposition from VAR models indicates that around 10% of the total variance of Ukrainian wheat prices could be attributed to the shocks in the world crude oil prices.

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Voynarenko M.P. Pankova K.V.

PREREQUISITES AND INNOVATIVE APPROACHES TO FORMATION OF INFORMATION SUPPORT FOR MARKETING OF MACHINE-BUILDING ENTERPRISES

Successful business practices show that in the context of complex integration processes and rapid globalization of the world economy, machine-building industry development becomes of great importance for strengthening the positions of each country at world market.

Machine-building is the most important complex industry in Ukraine. It runs such economic processes as conducting scientific research, engineering, manufacturing and selling of machines and tools. The machine-building industry is today in the midst of transformational changes, which are influenced by the interaction of market mechanisms and state regulations. As a result, competition at foreign and domestic markets is intensifying, relations between suppliers and buyers become more complicated, production of certain types of products is declining. Therefore, there is a need to search for new ways of confronting crisis phenomena and increase the efficiency of machine-building enterprises (Amosha, 2011; Romusik, 2010).

Marketing as a management concept provides a thorough knowledge of market mechanisms' interaction and assessment of their impact on the competitive advantages of machine-building enterprises (Bozhkova, 2009; Voinarenko, 2015). Marketing allows adapting production to environmental conditions and consumers requirements and demands, which, accordingly, ensures operating efficiency of machine-building enterprises and their profitability. Therefore, it's relevant today to build and effectively operate such information provision systems for marketing management of machine-building enterprises, that would adapt to the specificity of Ukrainian market of information and the activities of domestic machine-building enterprises, in order to become a real tool in competition.

Methodology. Marketing as an activity of a machine-building enterprise is a complex set of activities that includes forecasting the demand, pricing policy formation, organization of research and development projects on new products creation, product range analysis, development market promotion systems and other means that allow achieving the desired results of enterprise activity at the market (Apchel, 2010; Voinarenko, 2014; Dainovskyi, 2016).

It is typical for marketing management to use various data at all stages of development, adoption and implementation of marketing decisions. The process of marketing management involves collection of data, necessary for developing decisions, marketing decision-making, determining a set of activities required for decision implementation.

Current market conditions require companies take greater efforts and search for new methods of data collection, so that important management information is accessible whenever needed (Bozhkova, 2009).

Information as a resource becomes crucial for achieving management objectives. Therefore, it is necessary to have clear structuring of marketing information about consumers, market itself, market changes, competitors, level of products' and services' competitiveness etc., in order to make managerial decisions of varying complexity and for effective management of various business processes. Moreover, it should be noted, that the most important condition for integrated industrial structures operation is full-fledged information exchange between structural divisions and company management (Boiko, 2012; Voinarenko & Yemchuk 2015; Zakharchenko at al. 2010).

Formal methods of strategic and tactical marketing decision-making are not applicable, since decisions at this management level are made informally, using a broad information and analytical base. Therefore, one of the main requirements in the process of information marketing support is to develop access to the entire array of available marketing data. This requirement can be fulfilled only if operational communication between all sources of information and co-executors have been established, and there are regulations defining functions and responsibilities of all participants in the information exchange process (Voinarenko & Pankova, 2015; Pankova, 2016). In many respects, its expediency and saturation level can provide coordination of marketing strategies and market impacts, carried out in various strategic business activities.

In this regard, it becomes important to choose the right approach to marketing information distribution and methods of information support. Marketing information is one of the most important components of the information system for strategic and operational decision-making. However, only availability of reliable database ensures the correct use of marketing tools.

At the same time, complex manufacturing processes in financial and business activities of machine-building enterprises require the formation of integrated components, including resources consolidation, pooling of tangible assets, intensive information exchange and corresponding improvements of business processes in company's marketing management system, which makes possible even their qualitative change (Bondarchuk, 2010; Ustenko at al., 2012). Modern business practice shows that the problems of creating a unified information system of integrated elements have not been sufficiently studied by economic science.

It is necessary for the company to have an information system, which allows managing the product range, the volume of production and product sales, commodity flows, to monitor the market, to coordinate products supply centrally, since machine-building companies envisage technological, financial and economic elements, that require icommunication in order to integrate and provide effective

management. Thus, there is a high correlation between the effectiveness of marketing transactions and the level of their informational support, which is determined by the possibilities for accumulation and active use of information resources (Ustenko at al., 2012; Pylypenko & Berezovskyi, 2013).

The main purpose of marketing information support is collection, processing, storage and analysis of marketing information on the state of commodity and industry markets, national economy as a whole, as well as foreign commercial information, that is required for effective operations of machine-building enterprises as active participants in foreign economic activity.

Marketing information support can be implemented as continuous monitoring of the market based on collection and processing of incoming (including secondary) information. At the same time, it is also necessary to keep client files, create statistical tables, which are built on commodity and problem principles. It is expedient to use the collected information to compile analytical reviews, analyze market trends and prepare problematic marketing research. It is also expedient to release periodically analytical reviews, references, forecasts for the purpose of informing the management, as well as economic, scientific, technical and production departments. It is also possible to carry out special marketing research to highlight individual marketing problems, which are normally conducted of necessity with the involvement of specialized third-party organizations.

Majority of domestic machine-building enterprises already have a significant amount of information about their customers (Voinarenko & Pankova, 2015; Pankova, 2016), other contractors and external business environment. Marketing research methods are also well developed and widespread, but in the practice of machine-building companies the information processing methods, that provide generalization of indicators for comparison and integration of information prevail. The current approaches seve to determine the methods of information redistribution between different levels of machine-building enterprise management and within its hierarchical levels are extremely important. Based on this information, marketing competence of the integrated system as a whole is formed, which is a fundamental factor for further successful economic activity of machine-building enterprises. Moreover, the widespread use of tools and principles of marketing interaction will increase the efficiency of information support.

However, based on the results of our research, we come to the conclusion that at the current stage of economic relations development, machine-building enterprise management as a complex economic system, where marketing is an important component, should be implemented in a much wider scope under integrated structures. Interaction between integrated structures (external and internal) of each machine-building enterprise is characterized by direct and reciprocal orientation of information flows. Flow control requires a special approach since formation of a single information space that consolidates information flows of separate structural units becomes more and more relevant with the growth of information flows.

Taking into account this specificity, we suggest the concept of an integrated marketing information system. Its architecture is based on the traditional marketing information system, which can be defined as a set of organizational rules between data carriers, information flows between them, their rights to information and necessary data processing methods (Figure 1).

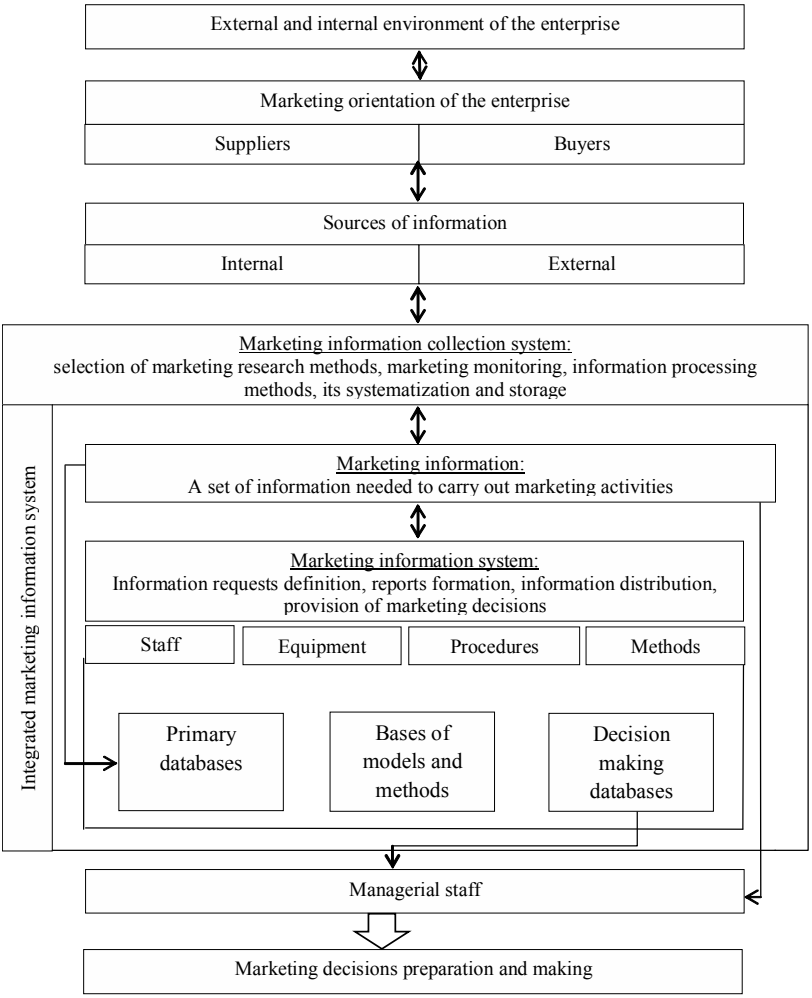

Figure 1. The main elements in the integration system of information marketing support

Source: developed by the author based on (Boiko, 2012; Voinarenko & Yemchuk, 2015; Zakharchenko at al. 2010; Pleskach, Zatonatska, 2011)

It also includes collection, sorting, analysis, evaluation and transfer of data and creates a unified and aggregated information basis for timely decision-making, associated with market development, to facilitate the implementation of marketing functions in the integrated business entities management process. Marketing information system should be connected directly to management system the primary task of which is regulation. At the same time, from the marketing information support perspective there are certain conditions for structuring marketing data, where the key point is development of information concentration and distribution solutions at the level of the entire machine-building enterprise, where data of strategic and predictive nature is of particular importance.

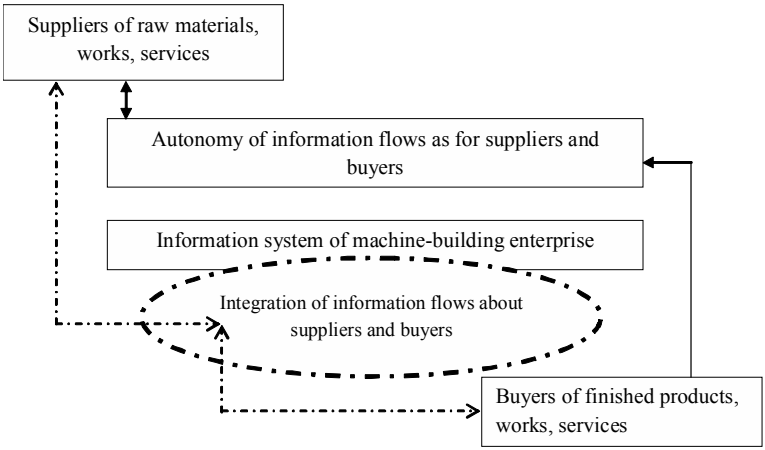

Figure 2. The integrated marketing information system basic components at the machine-building enterprises and the features of their interaction

Source: developed by the author based on (Voinarenko & Pankova, 2015; Pleskach & Zatonatska, 2011; Romusik, 2010)

At this point, marketing information flows that depend on the operation of the machine-building enterprise become especially important, as a network component with the allocation of its marketing orientation flows and information interaction with contractors (Figure 2).

Identifying marketing orientation as a separate component of marketing information support system allows machine-building enterprises focus on information support in building relationships with customers, that is based on the study of further trends and development of relations with suppliers of raw materials, semi-finished products, works and services etc. Thus, formation of an integrated marketing information system is based on three key principles:

- purposefulness, that is, provision of communications, effective information exchange with functional units and integrated components under marketing information flows centralization;

- completeness – provision of comprehensive data, its authenticity within the hierarchy of delegated authority and meaningful, temporary integration of all elements;

- rationality, that determines data flexibility, processing, filtering and structuring speed, in order to maximize the use of marketing information.

The main task while forming an integrated marketing information system is to coordinate data flows and create a single integrated information space, to strengthen the role of forecasting and analytical marketing function related to retrospective and perspective research of markets, industries, partners, demand and needs, and interconnection of relationship development trends with suppliers and customers.

Formation of an integrated marketing information system can include the following key stages:

- determination of goals and structure requirements for external and internal marketing information at machine-building enterprises;

- development of criteria for marketing information sources selection and updating, as well as the methods of external marketing information collection;

- definition of rules for external and internal marketing data collection by business units;

- identification of possible options for marketing information provision at all levels of management hierarchy;

- development of automation procedures for business processes.

In this context, assessment of information authenticity and relevance for the main objectives of management at the structural subdivisions level is highly time-consuming and requires a special approach to problem solving. In fact, it is necessary to choose from the huge volume exactly the external information that can best be used for marketing purposes, for example, when conducting strategic analysis and assessment of market prospects for various types of machine-building enterprise activities. These data should be aggregated by marketing department, which can be a powerful database of clients, projects and markets, both during strategic analysis and in the course of operational activities, for instance, participation in tenders or exhibitions, meetings and other communication with customers etc.

We should highlight the following aspects that affect the quality of information provision in the integrated marketing information system:

- technical solutions related to organization of marketing database;

- databases structures;

- regulations on the collection and systematization of primary and secondary information. This will allow accumulate and conduct analytical data processing

in order to collect primary information, conduct planning, implement individual activities, and receive a variety of business information that will reflect the developments in internal and external environment.

In general, formation of marketing information system subsystems is an important stage, since this formation of information provision components remains constant for a long period and contains data on potential of business areas, traditional market and market segments, as well as customers behavior and response, with the aim of further evaluation of its own and competitors activities effectiveness. On the other hand, this stage significantly helps employees of different levels to assess the degree of customer loyalty, probability of retaining the existing and attracting new potential customers in future, which in turn will allow manage the relationship with consumers and partners efficiently and utilize integrated marketing communications.

Database structure development, formation of queries and source documents may involve the description of data types that are used for marketing activities (reports, notes, graphical presentation forms). Formation of marketing information databases should be based on marketing research and the need to be analyzed systematically according to the entire complex of marketing activities. Formation and maintenance of internal and external information databases, as well as analytical procedures, should be carried out consistently and continuously. For this purpose it is expedient to develop the rules for integrated marketing information system operation, which provide instructions on databases update, and, above all, regulates information exchange in terms of competence and delegation of authority at each level of managerial hierarchy.

The main purpose of the integrated marketing information system operations is to provide the following:

- assessment of market conditions for a machine-building company and its development prospects (in terms of industries, types of products, traditional markets and target market segments);
- assessment of the company's products competitiveness, as well as the characteristics comparison of the products manufactured by the company;
- analysis of commodity and price structure of markets and market segments in order to identify future needs;
- analysis of marketing activities effectiveness.

An integrated marketing information system should also include an environmental monitoring subsystem that has the feature early warning and early detection. This subsystem determines the directions of observation, indicators, tasks and information channels for obtaining data in external and internal economic activity of integrated structures. Thereby, in our opinion, the most efficient method of marketing information support in integrated structures would be integrated marketing monitoring, the use of which is fully justified for both strategic and tactical marketing decision-making.

Certainly, in order to obtain strategically valuable information it is important to use other methods as well, for instance special marketing research.

However, taking into account the specificity of the research object, integrated monitoring is the most reasonable method of marketing information collection, since it includes procedures of data search, synthesis, transmission, restoration and presentation for the systematic marketing related managerial decision-making at all levels of management hierarchy at machine-building enterprises. Through implementation of a number of procedures, such as allocation of the observation object, object research, information model development, systematic assessment of the object state, forecasting of changes in object state, integrated monitoring can provide marketing information resources upon request to any level of machine-building enterprises management sytem.

Internal objects of integrated marketing monitoring are company performance indicators and resource provision of company's structural subdivisions. External objects of integrated marketing monitoring are macroeconomic trends: social, technical, technological, environmental and political changes, as well as the situation at the industry (cross-industry) level and company competitive environment. There are two key directions to carry out marketing observations.

Firstly, it's identification and analysis of marketing activity problems, which are quite difficult to detect at the initial stages of marketing observation or forecast the probability of their occurrence.

However, implementation of forecasting function is only possible when monitoring system is operating, along with the systematic research (analysis) of market development trends. To this end, it is expedient to study industry patterns and trends periodically, by means of specification and investigation of certain aspects of the market structure, and identify those factors that either positively, or negatively affect the market. With the help of various forecasting methods, conducting a certain algorithmic research provides the opportunity to develop various situational scenarios and possible solutions, evaluate their accuracy and make appropriate adjustments.

The second key direction in marketing observations is marketing analysis of those problems that have been already identified (for instance, threats or new business opportunities) in order to determine possible solutions (e.g., decision about market segmentation etc.).

Thus, the use of integrated marketing monitoring allows us to solve the following tasks:

- to develop a mechanism for conducting observations on entrepreneurial activity state changes in the industrial market, the dynamics of the factors that determine these changes, and to form the information base necessary to identify the key trends in industry and cross-industry development;

- to identify sustainable trends in industry development at regional, interregional and international levels;

- to observe consistent competencies' formation and development patterns of main competitors;

- to provide objective assessment of the occurring changes, based on the analysis of company's strategic priorities;

- to forecast market environment changes in the long term.

Conclusions. Consequently, complex production processes in financial and business activities of machine-building enterprises involve formation of integrated components, which include resources consolidation, tangible assets association and intensive information exchange. An information system that allows centralized management of the range, volume and sales of products, product flows, provide market monitoring, coordinate supply operations is needed because machine-building enterprises include technological and financial-economic elements requiring information interconnection for integration and effective management.

Integrated marketing monitoring is the most effective method of marketing information provision in integrated structures. Its use is appropriate for the development of both strategic and tactical marketing decisions.

Integrated monitoring is able to provide the formation of marketing information resources up to the demands of all levels of the hierarchy of the machine-building enterprise management system. For this purpose, the next procedures should be carried out: the object of observation definition, object research, the information model development, system assessment of the object state, state changes prediction.

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Yatsenko V.

INTEGRATION OF INCOMING CONTROL OF INVENTORY QUALITY BUSINESS PROCESS INTO THE MODULE OF ACCOUNTING CORPORATE INFORMATION SYSTEM FOR MANAGEMENT OF SUPPLY BUSINESS PROCESS

The results of the conducted investigation of real practice of improvement of the supply business process (Activity Model As-Is) for regional partnership of the group of companies and design of Activity Model To-Be with a view of integrating the incoming control of inventory quality business process into the module of accounting corporate information system and into the network of communications between modules of other operating system are demonstrated in this paper.

Introduction. It is necessary to recognize that the rise and development of information technologies and later systems in the West took place in an evolutionary way as a response to requests and demands of real changes occurred in the society.

Over the period of dozen years management standards were created on the basis of experiences acquired by successful companies, hierarchal construction of production and management processes were crystallized, the complex system that embraced all fields of enterprise activities, namely, management of sales, inventory, manufacturing, finances and of personnel, planning production and material inventory, financial analysis etc. were integrated. During this long period of time information systems were created throngs integration of modules, were designed for solving various management tasks.

At the beginning of 1990ts when the market of IT products was opened for Ukraine majority of enterprises were not ready to introduce such level of technologies due to absence of proper philosophy of management, relations with personnel, culture of manufacturing, and building of horizontal interrelations with contractors. However, due to globalization changes and information advance, bookkeeper found out himself (herself) on the "frontline", because accounting demanded using computer technology, and software products for documentation of accounting procedures, and in due course information technologies complicated. In our opinion this is the main reason of erroneous identification of main business processes (BP) with accounting processes on the part of many top managers at domestic enterprises.

Objective indications of state-of-the-art of the economic system of Ukraine created the reliable grounds for introduction of corporative information systems (CIS) of the ERP/CRM class into practical activities of enterprises and for their harmonization with the already operating accounting subsystems into the united information system.

The multifunctional CIS of the ERP/CRM class embraces all fields of management, namely, production and distribution, supply chains and projects, finances and methods of business analysis, interrelations with clients and personnel etc. The most well-known product at Ukrainian IT market is the project of the Russian company named as "1C", which specific feature is the operating platform "1C: Enterprise", various configurations including "Accounting for Ukraine", as well as system adaptation to specific customer demands by efforts of the small teams of specialists.

Among the most famous software products in the world that implement the concept of ERP, we should mention mySAP ERP, MySAP All-in-One and SAP BusinessOne company SAP AG, Oracle E-Business Suite, JD Edwards and PeopleSoft Enterprise of Oracle. The most popular company at Ukrainian market among small and medium-sized enterprises is Microsoft which has created Microsoft Dynamics AX (Axapta) and NAV (Navision) systems. Also, we should mention other ERP solutions such as ALTUM and ALTUM XL by Comarch, and also Swedish ERP and CRM system called Enterprise by HansaWorld.

Empiric investigations of state-of-the-art and prospects of applying information systems at enterprises in Ukraine proves that at present majority of large companies made decisions as to ERP/CRM introduction or already are engaged in project implementation. Medium-scaled business tries to introduce information technologies to the extent of necessity, available financial and technical opportunities; and small business practically does not demonstrate any interest although there is adequate assortment of software products oriented on small entrepreneurship subjects.

Situation can radically change in the case of long-expected growth of country economy and strengthening of domestic legislation in the direction of protection of intellectual property rights, which makes use of non-licensed software at enterprises impossible.

Automation of activities is considered through prism of the main principles of management theory, that is to say, CIS acts as the instrument of embodiment of management standards into practical activities of Ukrainian enterprises. For successful introducing the up-to-date CIS and gaining maximal effect as a result of its use first of all, reengineering oriented on redesign of internal enterprise business processes and X-engineering of external business processes focused on deep integration of enterprise cooperation with other contractors are in need. Methodology of reengineering and as a new direction in academic investigations as X-engineering [1-4] as well as development strategy, specific peculiarities of activities and the accumulated enterprise experience will define the Activity Model To-Be design for every BP.

Increasing demand for introduction and adaptation of CIS belonging to the ERP/CRM class in Ukrainian enterprises defined the goal of this chapter, namely,

presentation of the findings of the conducted investigation of real practical activities connected with reengineering and X-engineering of supply BP (Activity Model As-Is) intrinsic to regional partnership of the group of companies, which main activities is processing of agricultural production. The mentioned goal also includes the Activity Model To-Be design with a view of integrating incoming control of inventory quality BP into the module of accounting corporate information system and into the network of communications between other operating system modules.

General concept of CIS introduction into partnership structure. CIS belonging to the ERP/CRM class is intended for maintenance, provision, support, and control of operations of the main company business processes. That is exactly why introduction of such systems demands the most adequate "reproduction" of real company business processes in the virtual environment. For simplifying our understanding we limit ourselves to consideration of one of enterprise business-processes, namely, supply BP, and will consider management business processes as those BP, which realize traditional functions: planning, accounting, control and analysis. Today's Ukrainian enterprises are characterized by the step-by-step and indivertible reorientation of special attention from the processes connected with accounting of activities and with control of operations to processes of planning and analysis of enterprise activities. Efficiency of CIS introduction will depend on the results of holistic analysis of main enterprise business processes considered as management objects and management business processes considered as separate categories.

Two main arguments confirm the necessity of making decision as to the introduction of CIS belonging to the ERP/CRM class into the investigated partnership structure: Formation and development of electronic society in Ukraine; Representation of foreign investors in the company authorized capital and active cooperation with foreign contractors. In spite of the before-mentioned factors, objective reality of the economic system of on country and indisputable advantages of CIS use, introduction of this system on the practical level reveals the following problems: non-conformity of acting partnership business processes to Western models and methods of their management demanding cardinal reengineering of internal business processes and opening of new opportunities for X-engineering development intended for setting communications with external contractors; the rigidly regulated legislative-and-normative provision of accounting defines the methodology for representation of economic activities results, organization of documents' circulation and formation of data files and as a result causes complication in the integration of accounting module into the information system belonging to the ERP/CRM class; management methods built by the decades of planned economy make introduction of many corporate standards impossible; traditional psychological non-perception of novelties on a

part of employees, which demand their additional training and transformation of their thinking.

The company-designer selected the foreign company represented a Ukrainian market of IT services. This strategy provides for CIS introduction trough several stages over a long period. First of all, the accounting module was designed and introduced. It successfully operates and provides accounting in three formats at once: according to national standards [5]; according to international standards [6]; taking into consideration the newer demands of the Tax Code of Ukraine [7].

Special mechanisms of module preparation allow automatic transferring corresponding accounts from the accounting system designed according to national standards into the accounting system designed according to international standards and, if necessary, creating set of correcting corresponding accounts. The separate tax object of accounting was allotted for making tax calculations and creating forms of tax reporting. Other modules (purchasing management, conclusion of agreements and contracts, production management etc.) were designed and introduced step-by-step in an autonomic way at the beginning. Then after successful testing and approbation they were integrated into CIS. In such a way accounting is considered firstly as the unique artificial information system, which displays factual results of activities of all operating enterprise BP, and secondly as BP, which realizes such management function as accounting of activities. Accounting the considered as an artificial information system possesses its own method, which includes following elements of great importance for superposition of accounting pattern on enterprise BP: documentation and inventory, assessment and calculation, accounts and double entry, balance and reporting.

Accounting considered as a business process provides for construction of accounting-procedures' architecture on the grounds of the process-based approach. For adequate representation of activities' results for each operating business process it is necessary to observe several terms, namely, creation of several accounting business processes, arrangement of documents' circulation (electronic and paper one if necessary), formation of separate cash and material flows, and taking into consideration the peculiarities of double entry of economic operations. Now with the view of cardinal increase in efficiency of business processes (main those, which realize management functions) by means the up-to-date CIS introduction, the concept of strategic partnership development includes: Introduction of corporate standards in management on the grounds of the international ISO series [8-10]; reengineering of internal business processes; X-engineering of external business processes (supplier, consumers, partner).

Activity Model as-is of "Supply" business process. In the framework of this investigation we will consider the stock of materials and capital equipment, which are purchased for manufacturing (manufacturing inventory) and for enterprise activities in general (minor inventory), as inventory. Supply for the

investigated partnership was provided in a certain way. Taking into consideration technical standards, the economist of the planning-and-economics department calculated the necessary volumes of manufacturing inventory for loading the available manufacturing capacities and minor inventory for provision of partnership activities. The supply department head bears the responsibility for realization of the partnership-adopted contractual policy with respect to inventory suppliers. Inventory is delivered to main partnership warehouses according to agreements concluded with suppliers. The control division specialist exerts quality control over inventory transported into the main warehouse and confirms its conformity to agreement terms and to supplier's invoice by own signature. The main warehouse storekeeper legalizes a receipts note for inventory entered into accounting records. The bookkeeper engaged in inventory accounting processes the storekeeper-legalized receipts note and creates proper correspondences of accounts. The bookkeeper engaged in accounting of cash funds' operations performs settlement operation in accordance with agreement terms ("Accounting of cash on the bank accounts" business process is described in [11]). Since the investigated partnership has several manufacturing subdivisions, the bookkeeper engaged in inventory accounting divided manufacturing inventory stored in the main warehouse between subdivision stock rooms. Inventory writing-off into withdrawal accounts is made on the basis of the document named "Requisition slip", which is intended for manufacturing process, and of the document named "Delivery note" intended for other partnership demands.

Activities of partnership departments is presented in various information systems, and as a result, double keeping of documents, information doubling, and permanent objective changes demand making corrections into several systems at the same time, and it automatically increases the risk of errors. Software specialists bear the responsibility for support and update of information systems, however, they do not have an opportunity to set communication connections in electronic environment divided by partnership departments and subdivisions, and as consequence, in the course of inventory-purchase planning and its factual reception discrepancies occur periodically. In the accounting module the inventory accounting realizes accounting of manufacturing and minor inventory BP, which in turn consists of several B, that belong to the main stages of the inventory life cycle considered as accounting object (Table 1).

Analysis of the existing model of supply process for the investigated partnership allowed revealing bottlenecks and formulating the goals and metrics for simulation of supply BP (Activity Model To-Be): optimizing the period intended for keeping and processing of documents; organizing the operative inventory accounting in real time under the "today in today" mode; providing opportunity for representing operative information about the availability of inventory residues in the main warehouse and in storerooms of manufacturing subdivisions; monitoring

information on availability of non-liquid inventory; displaying factual changes in the online mode; creating reporting necessary for inventory management.

Table 1

Components of the "Accounting of manufacturing and minor inventory" BP

Stages of the inventories life cycle as accounting items	Inventory accounting components
Inflow	- BP «Supplier's account»
	- BP «Warrant»
	- BP «Supplier bill (Ukraine)»
	- BP «Supplier bill (import)»
	- BP «Refuse receipts at depot»
Usage	- BP «Internal Displacement of inventories»
	- BP « Displacement between affiliates»
	- BP «Stock Count»
	- BP «Inventories passing on to the processing»
Write-Off	- BP «Inventories replacement to the supplier»
	- BP «Write-Off inventories»
	- BP «Inventories sales»

Activity Model To-Be of supply BP. Formation of material flow can be the result of this BP. Process of parallel cash flow representation is not considered in the framework of this investigation.

Realization of the following stages is necessary for achieving the following goals set:

1. Design of "Incoming control of inventory quality" BP on the basis of corporate standards of quality;

2. Integration of incoming control of inventory quality BP into the accounting module;

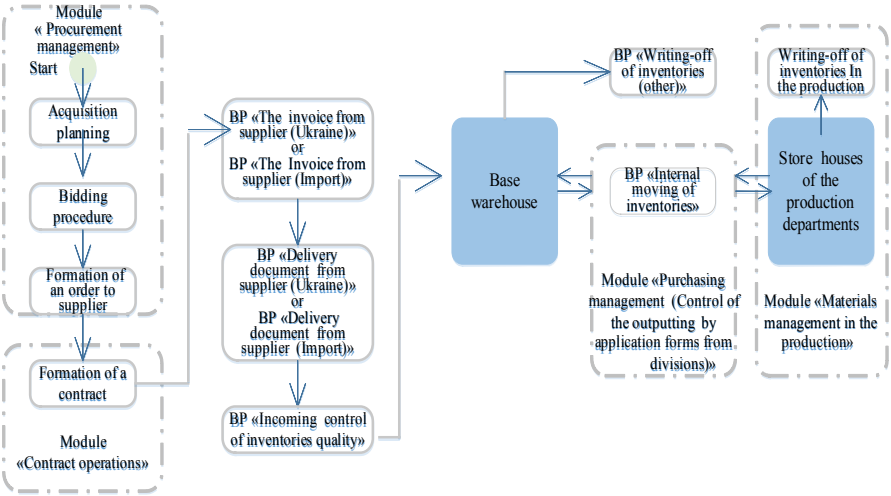
3. Integration of operating modules (accounting, management of purchases, contract-and-agreement activities, and manufacturing management) into the united information system liquidating doubling of primary data planned for input (operating and accounting documents) into the system;

4. Setup and optimization of communications between departments and subdivisions of the investigated partnership are done on the basis of electronic communications and developed standards with a view of increasing management quality and effectiveness of responsibility centers.

Visualization of superposition of the accounting pattern on supply BP is shown in Fig. 1.

Activity Model To-Be of incoming control of inventory quality BP. Incoming control of inventory quality BP is intended for representing information about the results (passing/non-passing) received after the procedure of incoming

quality control for inventory, delivered into the investigated partnership in the course of accounting.



Figures 1. Design of the "Supply" BP Activity Model To-Be

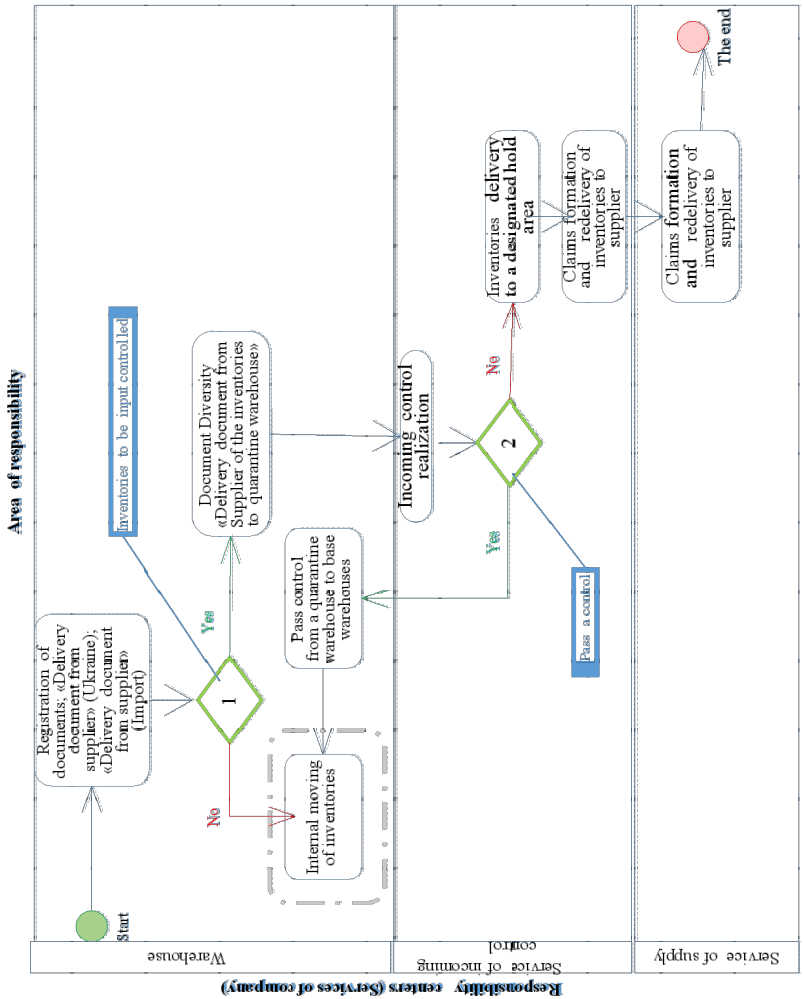
The virtual "quarantine warehouse" is included into the system for placing inventory subjected to incoming quality control into property. Electronic document named "Supplier bill" is formed with the aid of 1C on the basis of original of a supplier waybill. The "Subjected to incoming control" flag is set for inventory, delivered into the investigated partnership and subject to incoming quality control. At that, 1C automatically enters the "Quarantine warehouse" requisite and blocks the attempts to record inventory in the main warehouse straight away.

Inventory is relocated into the main warehouse according to "Internal relocation" BP with the aid of the internal relocation electronic document only after successful passing of the procedure of incoming quality control.

The said regulation prohibits relocation of inventory from the quarantine-warehouse directly into manufacturing subdivisions, and blocking mechanism for that is set in the system. Property, which does meet quality standards, is relocated into the virtual "Isolation ward" created in the system till "hookup" to "Returning of property to supplier" BP. Visualization of operating model of "Incoming control of inventory quality" BP is depicted in Figure 2.

Incoming control of inventory quality BP for business process management is represented as the flow of operations secured by process regulation (Table 2).

Incoming control of inventory quality BP is integrated into the accounting module however it does not possesses own document and does not create



Figures 2. Pattern of operation for "Incoming control of inventory quality" BP

correspondence of accounts. Limitations of incoming control of inventory quality BP: Hooking of business process algorithm is made only in the case of factual entering inventory into the books; Transferring to execution of the returning of property to supplier BP algorithm can be made only provided that supplier recognizes pretensions, and positions of a product range list and inventory volumes are agreed according to the Act on revelation of non-conformity concerning quality and package of goods.

Table 2

Regulation of Incoming control of inventory quality BP

Stage of BP	Action Specification	Importance
1	2	3
Creating supplier bill document with set "Subjected to incoming control" flag	Inventory is automatically entered into books of quarantine warehouse.	Storekeeper
Following procedure of incoming quality control	According to the results of the internal quality-control procedure inventory is relocated into: - the main warehouse if this procedure was passed; - the virtual "Isolation ward" if this procedure was not passed.	Control specialist
Drawing pretension to supplier	The commission together with an attracted supplier representative makes the final decision about the necessity of returning inventory to its supplier.	Control specialist
Notifying supplier	Pretension is sent to the supplier via e-mail.	Supply specialist

Effectiveness of Supply BP Activity Model To-Be. Incoming control of inventory quality BP was designed, realized and integrated into the CIS accounting module for introduction of corporate standards into partnership activities, in particular, into those intended for inspecting quality of goods delivered into the warehouse. Supplier bill (Ukraine) BP or Supplier bill (import) BP realizes factual delivery of inventory into the warehouse. Incoming control of inventory quality BP is "hooked" into "Supply" process only in the case of factual entering inventory, which is delivered to partnership warehouse, into the books and of their subjection to quality control. In the case of passing of internal quality-control procedure inventory is relocated to the main warehouses and afterwards to storerooms of manufacturing subdivisions according to Internal relocation BP with further accounting in "Management of manufacturing" CIS module. According to other variant, if inventory does not meet the established corporate standards of quality, then the Management of purchases module of business process management

class "attaches" "Supply" BP. Cooperation between supplier and managers of the supply department in the "Management of purchases" module should cause entering this fact into the contractor history. Satisfying a drawn pretension and agreeing the Act about revelation of non-conformity concerning quality and package of goods will become the basis for execution of "Returning of property to supplier" BP.

Conclusions. Investigation of implementation of the project intended for introduction of IT into practical activities of enterprises in Ukraine confirms the following hypothesis: CIS introduction should be accompanied with clear strategy prepared on the ground of various scientific theories, with their own specific peculiarities, and be adapted taking into account the real parameters of time and space intrinsic to companys operation. Direct imitation of foreign experience and blind mastering of technological process may cause harm more than provide breakthrough for company's business.

Investigation of real practical activities of enterprises is of invaluable importance and creates foundation for further development of academic science. The presented example illustrates practical application of fundamental principles and method of accounting for real enterprise and simultaneously demonstrates embodiment of the system of business process management points of view. The results of successful practice of IT introduction will become the example for other Ukrainian enterprises and create the platform for development and improvement of business process management considered in management theory.

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CHAPTER III

SOCIAL AND LABOR RELATIONS IN THE CONTEXT OF GLOBALIZATION

Dykha M.V.

KEY PROBLEMS AND CHALLENGES IN UKRAINE, SOLUTIONS AND APPROACHES: THE SOCIAL ASPECT

Nowadays practically every country of the world has a global goal: to ensure sustainable economic growth, to increase prosperity and to improve the quality of life for its population. However, in today's signs of a crisis due to civilizational development and world globalization, many countries face challenges in achieving this goal.

Unfortunately, the results of transformational changes in Ukraine throughout the years of independence differ from the expected and the desirable (taking into account the initial conditions of Ukraine). They have not led to sustainable economic growth and development, but have caused excessive social polarization. The first stage of extemporary transformation (1991-1995) was defined by partial preservation of the planned economic system and the attempts to modernize it without radical restructuring by introducing new economic elements and relations into the structure of national economy.

Ukraine lost about half of its GDP from its 1990 level during the first years of independence, moreover, systemic shortcomings of this period in many respects predetermined further socio-economic problems of the country. At the second stage of the in-depth transformation (1996-1999), the total abandonment of the system-forming role of planning-distributive relations in state policy and practice took place, resulting in transformations in all spheres of production and circulation. The third stage (2000-2008) was marked by positive dynamics in the development of individual branches of the economy and al GDP in gener. The period from 2000 to 2008 was a period of relative stability. The nonviolent "Orange" revolution in November 2004 gave hopes and aspirations to Ukrainian people that there would be a turning point in the development of the economy and public consciousness, that Ukraine would navigate towards building a democratic state, securing human rights and freedoms and creating an equally supportive business environment throughout, rather than favouring business interests of certain oligarchs. However, Ukraine's peaceful aspiration for a civilized future was ruined by systemic bureaucracy and corruption confrontation of political forces. Since the end of 2008 and in 2009, one could witness all typical crisis phenomena in the economy of Ukraine. The improvement of the situation in 2010-2011 was reversed by deceleration of the growth rate of the national economy in 2012. Since November 2013, political and legal upheaval in Ukraine, and since 2014, the secondary effects of the Crimea annexation and hostilities in the Donbas spread onto most sectors of domestic economy (for more details see [2]).

The state and trends of socioeconomic development of Ukraine give grounds for determining its key problems, challenges and risks:

- hostilities in Donbas, aggression of Russia against Ukraine, a whole range of socio-economic problems for people, businesses, and the state as a whole;

- corruption, uncivilized accumulation of capital, strengthening and merging of oligarchic capital with the state apparatus, subordination of the economy and the state in general to corporate interests, shadowing of the economy;

- low competitiveness of the national economy under increasing global competition, which involves aside from traditional markets of goods, capitals, technologies, labor, also national management systems, innovation support, human resources development; raw materials export model of economic development; shortage of foreign trade balance; deformed structure of industrial production; decline in the influence of numerous conventional (extensive) factors of growth; depreciation of fixed assets; low level of labor efficiency; high level of resource and energy consumption of the economy; downsides and drawbacks of the fuel and energy complex; insufficient approval of the innovative development model;

- deficiency of the state budget; shortage of pension funds; increase of the state and guaranteed by the state debt; insufficient development of the financial services market; extra-bank money circulation;

- inefficient employment policy, social protection; low effective demand of the population.

We can observe a widening gap between wealthy and low-income groups of the population, the social class, which consists of people who suffer from unstable lifestyles, is growing in numbers. Therefore, dealing with the standard of living of a large part of the population in Ukraine, the term "precariat" is increasingly used.

Analyzing the key problems, challenges and risks in the social sphere, we can state that over the years of independence, unfortunately, Ukraine has been unable to form an integral concept of social protection and the labor market.

1. The employment policy is ineffective. The number of unemployed people registered in the employment agencies of Ukraine, although significantly reduced during 2016, exceeded 390 thousand people at the end of 2016 (Table 1).

Table 1

Data on unemployed people registered in employment agencies, 2016

Index-numbers	Months											
	1	2	3	4	5	6	7	8	9	10	11	12
Number of people registered, in thousands	508,6	508,2	467,5	434,7	416,4	388,9	369,7	355,7	341,5	316,2	337,9	390,8
Applicants for a single vacancy	16,2	13,1	9,4	11,0	9,2	9,5	8,7	6,6	6,0	5,5	6,3	10,8
Successful applicants, % of registered	3,5	4,9	9,6	11,6	7,6	7,3	6,3	5,9	7,7	12,1	5,8	3,9

The source: compiled from the data [7; 9].

The number of applicants for a single vacancy varied from 16.2 people for a single vacancy in January to 5.5 people in October. The average annual number of applicants for a single vacancy is 9.4. On average, 7.2% of people found jobs among the registered ones.

According to the methodology of the International Labor Organization, which takes into account the total number of able-bodied, the number of those who work and those who do not work, we can observe that the unemployment rate of the economically active population in 2016 amounted to 9.3% (1678.2 thousand people); the working-age population – 9.7% (1677.5 thousand people) (Table 2). As a rule, these are people who did not work for more than a year, which means they lost their right for help, and it makes no sense for them to register. Consequently, the unemployed people registered with state employment agencies make up about one fifth of all those who are not working.

The unemployment rate in Ukraine is dictated by a number of factors. One of the important factors is the demand on the labor market for unpopular job titles – such as builders, turners, help staff, salesmen. The demand for IT professionals remains high. The least needed are lawyers, economists, accountants, insurance agents. Due to the mismatch of the structure of vocational training to the needs of Ukrainian labor market there is a significant imbalance between their demand and supply. That leads to increasing risk of unemployment benefits hike and additional costs for professional retraining of the unemployed. Another pressing issue is the problem of "the first workplace" and the employment of people who are over 40 years of age.

Table 2

Labour market in 2016

Economically active population	**In average, thousands of people**	**% of population of a corresponding age group**
in age 15-70	17 955,1	62,2
capable of working age	17 303,6	71,1
Including		
Employed population	**In average, thousands of people**	**% of population of a corresponding age group**
in age 15-70	16 276,9	56,3
capable of working age	15 626,1	64,2
Unemployed population (according to the ILO methodology)	**In average, thousands of people**	**% of population of a corresponding age group**
in age 15-70	1 678,2	9,3
capable of working age	1 677,5	9,7

* The data were presented omitting the temporarily occupied territories of Crimea and the city of Sebastopol, as well as a certain area being part of Anti-Terrorist Operation Zone.

The source: compiled according to the data from [7; 9].

Concerning the situation at the labor market, the number of the employed population aged between 15-70 amounted to 16276.9 thousand people in 2016. The level of employment was 56.3%.

The lack of the state employment strategy is accompanied by significant social costs, depreciation and dequalification of workforce, and shortage of skilled engineers and workers, high migration intentions.

Addressing the problems of unemployment requires a significant increase in job openings, which can be achieved through "new industrialization", the creation of modern high-tech enterprises in various sectors of the economy, modernization of the existing ones (ranging from rocket and aircraft construction jobs to vacancies in light and agricultural processing industries). "New industrialization" in Ukraine has a distinct possibility providing the implementation of rapid and systemic reforms in the field of public administration, creation of a favorable investment and entrepreneurial climate, and so on.

2. Remuneration of labour is low. The level of remuneration determines such basic macroeconomic parameters as effective demand, living standards of the population. Despite the increase in the minimum wage in Ukraine to 3200 UAH from January 1, 2017 onwards, the share of wages and salaries in production costs and GDP is low. The share of wages and salaries in the cost of production is only 10%, while in Western Europe it reaches up to 45%. The share of wages and salaries in GDP in Ukraine is 51%, while in the EU countries it is on average 65%. At the same time, Ukraine's GDP is smaller than the GDP of an average European country by 4 times, while wages and salaries are lower by 5.6-19.7 times.

Boosting pay levels is the most effective way of fighting poverty, increasing purchasing power of population and reducing the outflow of skilled workers abroad.

European countries have long since arrived at conclusion that the minimum wage should meet the needs of workers and their families, as reflected in ILO Convention No. 131 ratified by Ukraine [6] and the European Social Charter (revised) [4].

In order to ensure that decent wages and salaries are paid to workers on the basis of equitable distribution of labor outcome and raising the level of labor income to the EU standards, to achieve European guarantees in remuneration of labour, an adequate level of social protection of workers, to ensure equal access of all citizens to public goods, social justice and non-discrimination in all of its aspects, we must combine the efforts of legislative, national and local executive authorities, employers and employees.

3. Social protection policy failure. State policy in the field of social protection focuses on the unceasing increase in the number of insufficiently substantiated social benefits, allowances, subsidies etc. Regarding the social sphere, budget funds are mostly directed to maintaining payments under a structure dominated by passive elements of social protection. Active elements (education, vocational training, medicine) which increase the occupational and

intellectual potential of a person remain the subject of residual financing. Such an approach inhibits systemic market transformations, significantly reducing their effectiveness. In addition, the national social protection policy inefficiency is due to inconsistency with labor, taxation, family and demography policies.

The corpus of current legislation in the field of social protection and social security consists of quite controversial legislative acts, which were adopted at different times, are cumbersome and unmanageable.

In particular, benefits and allowances, social benefits, social services in Ukraine are prescribed by more than 50 laws and more than 120 subordinate legal acts. According to the current legislation, there are about 120 categories of beneficiaries in Ukraine, of which only 45 categories are determined on a social basis, whereas 57 categories are determined on a professional basis. There are more than 130 categories of recipients of social benefits, of which 70 categories receive social benefits on a social basis, and about 50 categories receive social benefits for professional reasons.

Lacking appropriate resources, the state has made additional commitments in the field of social protection and social security, which often have no effect, except for the privileges for representatives of certain occupations or social groups.

Financing of expenditures in the field of social protection and social security from the state budget and targeted extrabudgetary funds is non-systemic and non-transparent.

At the same time, expenditures of social nature can be found in various expenditure items of the consolidated budget at the national and local levels. Therefore, the real volume of all social expenditures of the nation is 3-4 times higher than declared by the "Social protection and social security" item of the consolidated budget.

In our opinion, further reproduction of the unmanageable social and financially untenable system of allowances and social benefits, while preserving the inefficient, extensive network of the state social protection institutions, is inadmissible.

Ukraine, recognizing international standards in the social sphere, should take sufficient measures to implement them.

It is necessary to introduce more efficient and economically sound forms and types of social protection, which should be followed by the development of a network of social services institutions at the community level, since it is more in line with the European model and international standards.

It is essential to eliminate all "loss zones" in the social sector. The author is convinced of the necessity to monitor the system of benefits, social and compensatory payments and recipients of benefits for determining the amount of necessary budget funds for the financing of the system of benefits and refusal to grant benefits to those categories (and persons in particular) that are

unreasonably included in them. Resources should be directed to those who really need them, not to people who can easily do without them. In particular, even childbirth financial assistance should be provided on a more explicit basis. It is advisable to refuse to provide benefits on a professional basis, and a decent standard of living must be ensured by the proper level of remuneration. It is important to stop the policy of supporting institutions by default, paying no attention to the influence of their work on citizens (when the interests of officials in institutions outweigh the interests of those whom they work for).

Consequently, reforms in the field of social protection and social security should be implemented in the following areas:

- reconsidering legislation on the established benefits, allowances and social payments downward to reducing the number of categories of their recipients;
- ensuring transition from social benefits system to targeted social benefits and social services;
- cancelling benefits provided on the professional basis;
- reviewing the system of criteria and grounds for granting privileges and social benefits to citizens;
- ensuring transparency in financing of social expenditures;
- coordinating legislation in the field of social protection and social security with budget legislation.

4. Issues of pension provision. Unaccomplished pension reform. The pension system, despite the important results of changing pension legislation, has a number of disadvantages. Most measures to address pension provision problems are of a parametric nature and are aimed at reducing (overcoming) the budget deficit of the Pension Fund of Ukraine.

However, for future pensioners, retirement benefits tend to become less comfortable (with some rare exceptions), therefore, the task of ensuring a decent standard of their living is not resolved.

The deficit of the Pension Fund of Ukraine is additionally financed from the state budget. It is worth noting that the malmanagement of the funds, such as the State Budget of Ukraine and state extrabudgetary funds, which are organizationally separated from the state budget and have a certain autonomy, is a significant drawback of the budget process.

In total, four extrabudgetary funds (1. Own revenues of the Pension Fund; 2. Income of the Social Insurance Fund for temporary disability; 3. Income of the Social Insurance Fund against accidents at work and occupational diseases; 4. Income of the Fund of Mandatory State Social Insurance in case of unemployment) accumulate on average 13% of GDP or a quarter of the financial resources of the entire system of public finances in Ukraine. In terms of financial resources mobilization, the largest of the four funds is, naturally, the Pension Fund of Ukraine (85-87% of the total amount of social fund revenues).

The problem is becoming more pressing also due to the fact that the number of pensioners in Ukraine is increasing, which inversely leads to an increase in the budgetary burden (Table 3).

Table 3

Average rate of monthly pension benefit and the number of pensioners at the beginning of the year

Year	Average rate of prescribed monthly pension benefit to the pensioners, registered with the Pension Fund agencies, in UAH				Number of pensioners, in thousands
	total	including			
		due to age	due to disability	no income earner	
2006	406,8	417,7	393,2	302,8	14050,0
2007	478,4	497,0	435,8	339,3	13936,8
2008*	776,0	798,9	624,4	517,5	13819,0
2009	934,3	942,7	780,7	696,6	13749,8
2010	1032,6	1039,6	884,6	807,9	13721,1
2011	1151,9	1156,0	1033,8	940,0	13738,0
2012	1253,3	1252,4	1164,3	1053,8	13820,5
2013	1470,7	1464,3	1359,2	1252,8	13639,7
2014	1526,1	1521,6	1406,5	1303,8	13533,3
2015**	1581,5	1573,0	1432,1	1433,1	12147,2
2016**	1699,5	1690,3	1545,2	1640,3	12296,5
2017**	1828,3	1808,9	1705,9	1803,0	11956,2

* Since the beginning of 2008, the average rate of the pension benefit (except for the category "due to age") is given based on the pensioners whose pension benefits are being granted and paid by the Pension Fund authorities in accordance with the Law of Ukraine "On pension provision of individuals dismissed from the military service, and some other individuals".

Data on the average rate of monthly pensions granted are based on target financial assistance and indexation provided by the law.

** Excluding temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol and partially the area of the anti-terrorist operation zone.

Source: compiled according to the data from [9].

During the years covered by the research, the rate of pension benefits has increased, the structure of pension recipients has not changed significantly. More than 77% of them are retired due to age; the second numerous one is the category of pensioners retired due to disability (about 10%). There is a significant stratification of pensioners by pension volumes. More than 95% of the pensioners receive pension benefits at the rate of 1000-2000 UAH; less than 1% of pensioners get pension benefits of more than 4000 UAH.

Improving the functioning of the pension provision system and solving the issues of pension provision are directly related to improving the macroeconomic

status of the nation (reducing inflation rate, reducing unemployment rate, raising wages and salaries).

It is important to reduce the scale "shadow" wage payments to employees (illegal wage and salary payments without taxation and remitting the contributions to social insurance funds), the perfect option would be a complete cessation of paying shadow wages and salaries and jull transition of business entities to the legal sector.

Furthermore, the state should actively engage the services of non-state pension funds in providing pension schemes.

Given the current demographic conditions (population aging), the top priority of national social and demographic policies should not be mere enhancing the birth rate, but also the prolongation of meaningful employment, full-scale economic and social activity of the population of older age groups.

Pension reform should be founded and conducted on a systematic ground, tested by experience of other countries and adapted to Ukrainian conditions, namely:

- social justice, acceptance, understanding and support of the reform by vast majority of population;
- freedom of choice, stimulating interest, involvement and responsibility of citizens for their own well-being in the long run;
- economic feasibility and financial capacity and stability of the pension system;
- promoting the growth of national savings and economic development of the country;
- insuring against political risks.

Creating an adequate market economy of the pension system will increase the level of responsibility of citizens for their destiny, will prompt them to save portion of their earnings for old age, will help them overcome paternalism attitudes and expectations.

The multi-level pension system, built on the principles of social justice, solidarity of generations and social insurance, will expand opportunities for welfare and decent standards of living for the elderly.

5. Health care system inefficiency. The domestic health care system is not able to adequately meet the needs of the population in medical care, to ensure availability and quality of medical services. This is reflected in medical and demographic indicators. Thus, in 2013 the natural reduction of population numbers was 158712 people (3,5 person per 1000 people), in 2016 natural decrease in the population numbers (excluding temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol and some areas of anti-terrorist operation zone) amounted to 186592 people.

The need for reformation of the health care system, the use of the most up-to-date protocols in the provision of medical services is beyond doubt. However, ways and mechanisms for practical implementation of changes in medicine are debatable, especially in terms of financing medical institutions, medicines and other items.

The bill 6327 [10], which still is a draft (the Verkhovna Rada of Ukraine will consider it no earlier than September 2017), provides for the introduction of full funding from the state budget at the level of primary (general practitioner) and emergency (emergency care), as well as palliative care. According to the estimates by the Ministry of Health the amount is approximately 80% of all possible expenses of people for medicine [8].

Reformation of the health care system should solve the problem of optimizing budget flows. Also, the proposed changes will make it possible to engage non-state-owned healthcare facilities to the provision of medical services at the expense of budgetary funds.

In our opinion, since there is no single norm that in practical terms should ensure access to free medicine in Ukraine, delaying reformation of the healthcare system is illogical and irresponsible.

6. Ineffective housing and utility policies. Unsatisfactory technical condition of housing and utility services is due to the high level of depreciation of fixed assets in this sub-sector – 62.2%. Housing facilities stock which is represented by the houses of the first mass series (built in the 1960-1970s) occupy the area of about 72 million square meters. Those houses require replacement or reconstruction. In fact, every fourth urban resident lives in accommodation with unsatisfactory technical conditions, poor functional quality and have exhausted their service life.

15.7% of the total extent of the heating networks are unserviceable and dangerous to use. Thermal energy waste in the housing facilities stock equals 30% and in external networks – up to 25%.

44% of energy resources are consumed by the housing and utilities sector of Ukraine, which accounts for about 30% of the total fuel consumption in Ukraine. At the same time, the cost of energy per unit of manufactured products and provided utility services is more than 1.5 times higheras compared to the respective foreign indicators. For reference, one inhabitant in the existing buildings with centralized heat supply in Ukraine consumes 1.4 tons of conventional fuel per year to heat 1 square meter of accommodation, which is 1.5 times more than in the USA and 2.5-3 times more than in Sweden.

Irrational and inefficient use of fuel and energy resources by housing and utilities enterprises is one of the most pressing issues of the industry.

Water and sewage pumping stations and wastewater treatment facilities in all the regions of Ukraine also show considerable physical and moral deterioration. Considering total extent of networks, 37% of the water supply networks require replacement and 34.8% of sewage networks need the some. The volume of water losses and unmetered drinking water at the water supply and sewage facilities in the cities of Ukraine exceeds 30% and in some cases may reach 60% of the water fed to the system. Due to outdated equipment, non-optimal operation of pumping stations and the loss of drinking

water during transportation and distribution, unproductive costs of electricity on the national average equal 25%. Therefore, water supply and sewage networks require major upgrades, improving operating procedure, equipment replacement etc.

The top-priority course of accelerated reformation of housing and communal services is the implementation of an effective energy saving policy. According to experts, implementation of energy saving measures in the housing and utilities sectors makes it possible to reduce gas consumption by the average of 22% while manufacturing, transportation and supply of heat energy in the system of housing and utilities services; it also enables reducing electricity consumption by 15-20% in water supply and drainage systems [5].

The condition of infrastructure objects causes significant internal development constraints. Particularly pressing issue in recent years is the condition of roads, the driving on which should be considered not just in terms of reducing the logistics efficiency of economic entities, but above all as a threat to the safety of people, both drivers and passengers.

Ukraine needs to seek solutions to the key issues and challenges that have been argued above. It is impossible to solve the corresponding tasks with the help of merely technological instrumentarium.

What we lack is the reformation strategy, which can comprehensively cover all areas of economic, social and technological modernization.

Achievement of sustainable economic development and ensuring high standards of living / quality of life will depend on the efficiency and accomplishment of solution approaches to many problems.

Effective reformation of Ukrainian economy, implementation of profound structural reforms with qualitative upgrading of goods production, market and social infrastructure are possible only after technological modernization. The inability of the country to conduct structural reorganization of national economy in accordance with the requirements of the new technological paradigm or delaying such structural changes not only hinders its development, but also leads to economic crisis, widens the gap in their growth in relation to the countries, which are successful in implementing such changes.

Issues dealing with socio-economic growth of Ukraine need to be addressed in a comprehensive manner. The problem of social security cannot be solved without ensuring economic growth and economic development. It is impractical to separate models of endogenous from models of exogenous growth since economic and social development is under the influence of endogenous and exogenous factors, it varies on the degree of manageability and controllability, and it is driven by a system of state regulation of socio-economic processes (for more details see [1]).

As a matter of actual practice, decisions are often ill-grounded, without a proper level of validation and consideration of the possibilities and consequences of their implementation.

In our view, the process of regulating social and economic development requires switching from isolation of budget and structural balance to their integration. Firstly, the budget structural balance implies the definition of budgetary relations and parameters of national economy taking into account the necessary structural changes in the socioeconomic filed, which in actual practice is often ignored (when budget planning is done without sound technical and economic assessment of economic, environmental, technical and technological etc. possibilities and consequences of subsystem funding). Secondly, such an integration approach provides an opportunity to mutually coordinate the implementation of plans, programs of economic development and social security with budget and resources, including the possibility of attracting investments. As a matter of practice, they frequently fail to abide by such a requirement. For example, decisions are made without proper technical and economic assessment of the possibilities and consequences of their implementation. Accordingly, in the absence of the necessary amount of budgetary funding of socioeconomic programs, there is a budget deficit allowed for or, subsequently, such programs will not be implemented.

In order to balance the interests of the subsystems and the subjects, there must be scientifically substantiated and balanced approach to the procedure of allocating budgetary funds on the basis of relevant grounds and appropriate calculations, as well as valid priorities of socioeconomic development of the country.

The interdependence between donor and acceptor subsystems needs to be studied in their structural and functional interconnection.

Management of socioeconomic processes should be based on the integration of financial and economic approaches that will enable the structural budget balance of socioeconomic development and the conceptual structural and functional interconnection between the donor (economic) and the acceptor (social) subsystems to ensure the structural and functional equation, rational distribution of financial assets through investments into the development of the economy, infrastructure, and for social needs (for more details see [3]).

Given the current conditions, Ukraine needs to modernize all the aspects of its activities; to make prompt, but well-considered decisions, to take decisive steps to ensure the facilities for the development of the economy, human rights and freedoms support, and to lay the groundwork for solving the tasks of achieving civilized rules and standards of living, quality of life for Ukrainian population.

Systemic reforms and transformations in all spheres of economy and people's livelihoods, the system of means for regulating social and economic processes should be based on the strategic vision of the directing marks of economic growth. It is necessary to ensure the competitiveness of the national economy and sustainable socioeconomic growth through the establishment of an innovative model of economic development, structural adjustment,

modernization of infrastructure and principal industries of the economy, expansion of energy, agro-industrial complex, etc.; modernizing the public finance management system by improving business environment, boosting investment and innovation activities, deregulating economic activity and counteracting corruption; decentralization. The state's structural policy should be redirected from providing support to inefficient businesses to infrastructure development, ensuring labor mobility, human potential support and evolvement and ensuring the facilities for personal fulfilment.

Social transformations should maintain the necessary social stability as a factor of reducing business risks, reproducing intellectual capital, reducing social inequality.

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PROBLEMS OF LABOR MARKET: MODERN APPROACHES OF MODELING AND ANALISYS

Labor market as a system of social relations connected to labor supply and its engaging does not end with the problems of employment, but coversall the economic space related to the field of labor, generalizing a complex range of economic and social relations. Labor market research covers the problems of employment and unemployment, labor efficiency and its organization, formation and quality of human capital (Czarniewski, 2014), working conditions and payments, income and consumption, education, training and retraining of labor force, stability and guarantees of employment, unemployment benefits, labor motivation and migration.

Interacting in the labor market, labor demand and labor supply form employment of population that is one of the most important aspects of socioeconomic life for a person associated with satisfaction of the needs in the field of labor (Bogynia and Grishnova, 2006), determines the production output and ensures the economic basis for society life. If labor supply exceeds labor demand, there is a socioeconomic phenomenon of unemployment.

Different theoretical macroeconomic models describe the processes of labor market functioning in different ways. They characterize the state of its equilibrium, explain the labor demand and labor supply formation.

The neoclassical theory of the labor market is based on the assumption of the existence of perfect competition at the market of goods and services, as well as at the market of production factors. According to the neoclassical methodology, real wages are entirely determined by marginal labor productivity, and labor demand depends only on the level of real wage w. The labor demand function for $L^d = L(w)$ is a decreasing curve. Therefore, employment depends only on w in the short run: if w increases, employment decreases and vice versa. In the long run, labor demand depends on technological progress and capital growth (Tarasevych et al., 1999).

The Keynesian labor demand is based on the assumption of an exogenously setting nominal wage W_0. The level of employment depends on the size of effective demand, and the function of marginal productivity determines the real price of labor demand. The level of effective demand (Y_0) is determined by the IS-LM model, that basing on the production function determines the level of employment (L_0) and marginal productivity, and hence – the real wage level w_0. The fixed level of nominal wages and the price level (P) in the economy determine the number of employees. If the actual real wage W_0/P is less than the equilibrium w_0, firms will still employ an equilibrium number of employees L_0. If it is greater, firms will employ fewer employees for a fixed salary, and then the goods supply

will be lower than demand. Thus, in the short term, there will be deficit in the commodity market. The level of employment and labor price, according to the Keynesian concept, change only if the equilibrium in the IS-LM model changes. Therefore, the curves of the IS or LM are shifted (Blanchard and Gali, 2007).

Regarding the labor supply curve, the neoclassical and Keynesian theories argue that with the wage increasing the labor supply increases to a certain level. According to the neoclassical approach, labor supply is directly proportional to real wages, as well as interest rates. If the interest rate grows the person reduces free time in this period and increases his job offer $L^s = L(w, i)$. Instead, according to the Keynesian approach, the labor supply does not depend on the interest rate.

With rising prices, according to the neoclassical approach, real wages decrease leading to decrease in labor supply. At the same time, the Keynesian theory argues that rising prices do not have impact on labor supply. People offer the same amount of labor and agree to work for less salary because of the fear of losing their jobs and adding to the unemployment cluster, as well as taking into account the conditions of long-term employment contracts and their nominal wages.

Equilibrium at the labor market is established when labor and labor demand are balanced. According to the neoclassical approach, wages are responsive to changing market conditions instantaneously, resulting in full and effective employment through market mechanisms. Hence, the equilibrium is stable, and there is no unemployment. Since all working-age population who want to work is employed, full employment is achieved at the labor market. Full employment is characterized not by the maximum possible involvement of the working-age population, but by the availability of jobs for all those who wish to work (Bogynia and Grishnova, 2006). Effective employment is ensured by the fact that further labor growth does not benefit, since labor demand actually expresses marginal labor productivity. According to the Keynesian approach, labor market can be in the equilibrium state and in the absence of unemployment, since labor demand is determined not by the it price but by taking into account the effective demand for goods and services. High price of labor leads to unemployment, while wage cuts do not increase labor demand. In this case, if there are those who want to work for a salary lower than the established, an aggregate demand increase will allow increasing employment and reducing unemployment (Wahiba, 2014).

Full employment does not mean that all labor resources of the working-age population are employed in the economy. Some people do not want to work for the proposed salary (voluntary unemployment). There are always people who are looking for a better place to work or are getting ready to work in a new place. This level of unemployment determines the natural rate of unemployment and is the result of the possibility of free choice of work and its duration in the labor market.

The natural level of unemployment given full employment is determined by the following relationship (Mankiw, 2014):

$$u^* = s / (f + s),$$

where s is the firing coefficient; f is the employment rate. This level characterizes unemployment in the longrun and, according to M. Friedman, reflects the non-Walrasian structure of the labor market, its imperfections, stochastic demand and supply fluctuations, cost of collecting information on vacancies, their availability and the natural movement of labor. The natural rate of unemployment covers frictional and structural unemployment and changes over time. The actual current unemployment rate have strong impact on the natural level of unemployment besides of the vocational retraining programs quality and unemployment insurance (Mankiv, 2014). In particular, if recession phases are long, and unemployment is high, then the natural rate of unemployment does not return to the previous level, but approaches a certain higher value and demonstrates hysteresis (Dritsaki and Dritsaki, 2013). Such changes are partly due to the loss of employees'skills during the period of non-employment, as well as various opportunities for insiders and outsiders to influence the wage formation on the labor market (Moravansky and Nemec, 2006). Consequently, the natural rate of unemployment is a dynamic indicator which depends on the previous states of market functioning (Tarasevich et al., 1999):

$$u^*_t = u^* + \lambda (u_{t-1} - u^*), \quad 0 < \lambda < 1,$$

where u^*_t is the dynamic level of natural unemployment in the period t; λ is the hysteresis coefficient.

The actual unemployment rate moves around the natural level and is determined by the phases of the business cycle. The difference between the actual level and the natural level of unemployment characterizes cyclical unemployment. Okun's law describes the relationship between cyclical unemployment and GDP gap as following

$$(Y^* - Y) / Y^* = \alpha (u - u^*),$$

where Y^* is the level of full-time income; Y is the actual income level given presence of cyclical unemployment; α is the Okun's coefficient. Given cyclical unemployment, part of workers may work part-time, besides, because of hidden unemployment, average productivity of labor is reduced. Empirical studies on Okun's law for different countries indicate that production output is determined not only by the available technology, but also by changes in the behavior of economic agents under changing market conditions (Holmes and Silverstone, 2006).

Unstable and low incomes change people's attitude to work, generate indifference and shirking, and reduce productivity. Macroeconomic models show that if the nominal wage growth rate, which characterizes the labor price, does not reflect the growth rate of general price level in the economy, the equilibrium level of employment is changing. The condition of equilibrium at the labor market is expressed by following the relationship

$$PY_L = W^s(L, P),$$

where W^s is the labor supply price function; $Y_L = \delta Y/\delta L = MPL$ is marginal productivity. If the overall price level changes, then, having differentiated, we obtain

$$Y_L dP + PY_{LL} dL = W^s{}_L dL + W^s{}_P dP,$$

where $Y_{LL} = \delta^2 Y/\delta L^2$, $W^s L = \delta W^s/\delta L$, $W^s{}_P = \delta W^s/\delta P$. Therefore,

$$dL = (W^s{}_P - Y_L)/(PY_{LL} - W^s{}_L)\, dP$$

characterizes the effect of employment and determines the change in employment after equilibrium establishment on the labor market as a result of changes in the price level (Blanchard and Gali, 2010). Taking into account the employment effect, we obtain the effect of production

$$dY = Y_L\,(W^s{}_P - Y_L) / (PY_{LL} - W^s{}_L)\, dP,$$

the value of which indicates how much production will change in response to changes in prices.

Practical significance of the influence factors on the labor market functioning and macroeconomic indicators changing in the long run and the cyclicality of their short-term behavior were studied by many scholars and were explained with theoretical economic and mathematical models (Cancelo, 2007). The researchers substantiate high elasticity of the employment reaction as a response to fluctuations in labor demand, simultaneously noting slight changes in real wages that are evidences of non-Walrasian structure of labor market (Garcia-Solanes, Rodriguez-Lopez and Torres, 2011). On a competitive labor market, the presence of unemployment leads immediately to reduction in wages that lasts until labor demand and labor supply are again balanced. Theoretical macroeconomic models of the labor market make it possible to identify various reasons why the labor market deviates from the Walrasian market properties (Bachmann et al., 2013). They ascertain whether these deviations can lead to significant unemployment and how their impact on the cyclical employment behavior and real wages is significant (Dupaigne and Feve, 2009).

A number of theories are based on the assertion that higher wages increase labor efficiency and labor productivity (Baffoe-Bonnie and Gyapong, 2012), and show that the benefits that a firm gains from paying higher wages compensates for its costs. Higher wages allow increasing the consumption, increase their productivity and improve the quality of work. On the Walrasian labor market, the employee does not care whether he lose his job or not, since such jobs are always available, and therefore, without fear of dismissal, the employee has no incentive to make more efforts. Instead, if the firm pays wages more than equilibrium, then its workplaces are valued, and the workers are more diligent even if they are not afraid of being caught on negligence. In addition, higher

wages can improve the quality of staff that the firm cannot control. If the firm pays higher wages, it will likely employ more skilled workers. That will increase the average quality of staff and the labor productivityabilities in the company (Weiss, 1980). Ultimately, high wages can enhance workers' sympathy and, hence, contribute to more effort. Vice versa, low wages can provoke anger, awaken the desire for revenge and, ultimately, lead to evasion of duty and sabotage (Akerlof, Yellen, 1990). There are other potential benefits of higher wages. In particular, the firm can reduce staff turnover, and, consequently, the cost of recruiting and training, to reduce the probability of uniting workers into unions and to increase the usefulness of managers.

Theories that justify direct dependence between wages, productivity and economic efficiency of labor are called effective wage theories (Yellen, 1984; Katz, 1986). Such models usually assume the presence of a large number of identical competitor firms, denoted by N, which is stable in the short run. A typical firm strive to maximize its real profits determined by the formula

$$\pi = Y - w\,L, \tag{1}$$

where Y is the production volume of the firm, W is real wages, L is the amount of labor.

In effective wage models, firm productivity depends on the number of employees and on the quality of their work. It is usually to assume that the number of labor L and the variable e, which reflects the level of workers' efforts, are included in the production function multiplicatively (Romer, 2012):

$$Y = F(eL), \qquad F'(\cdot) > 0, \;\; F''(\cdot\cdot) < 0. \tag{2}$$

One of the assumptions of effective wage models is that effort is an increasing function of wage received by an employee, that is,

$$e = e(w), \quad e'(\cdot) > 0. \tag{3}$$

Macroeconomic literature describes other possible sources of incentives for workers and states that wages are not the only one factor of effort (Prescott, 2004). In addition, the effort of an employee depends not only on the wage he receives for work, but also on how easily it will be possible to find another job, if the firm will fire him because of poor quality of work, as well as on the wages paid by others firms. Thus, for each fixed wage level, workers are likely to put more effort if the unemployment rate is higher. They put less effort if other firms pay higher salary. Consequently, as a generalization of the effort function (3) we consider the function

$$e = e\,(w, w_0, u), \quad e'(\cdot) > 0,\; e'_2(\cdot) < 0,\; e'_3(\cdot) > 0, \tag{4}$$

where w_0 is average wages in the economy, u is the unemployment rate. The total number of employees, each of which is the unit of labor, is assumed to be a constant and equal to L_0.

A typical firm investigates the problem

$$max_{L,w} (F(e(w,w_0,u)L) - wL). \quad (5)$$

If there is unemployment in the labor market, the firm can arbitrarily set the wage level. If there is no unemployment, the firm must pay, at least, the same wages paid by other firms.

The first order maximum conditions with respect to L and w have the following form

$$F'(e(w,w_0,u)L)\ e\ (w,w_0,u) - w = 0, \quad (6)$$

$$F'(e(w,w_0,u)L)\ Le'_1\ (w,w_0,u) - L = 0. \quad (7)$$

Hence, it follows that in the optimum the effort elasticity of wages is equal to one:

$$w\ e'_1\ (w,w_0,u) / e(w,w_0,u) = 1. \quad (8)$$

Since the production output is the function of eL, then, hiring an employee, the firm receives e units of effective labor at the price w. Thus, the cost per unit of effective labor is $w/e(w)$. Each firm strives to hire labor as cheaply as possible, and the necessary conditions (6), (7) provide a choice of w, which minimizes the cost of effective workforce. The wage, which satisfies the equation (8), is Calledan efficiency wage. The equation (6) shows that the firm employs employees until the marginal product of the effective labor force is equal to its value.

From the model follows the description of the general economic equilibrium. Since firms are assumed to be identical, each firm chooses the same values of w^* and L^* that satisfy conditions (6) and (7). It is usually assumed that the function $e(\cdot)$ is such that for the given w_0 and u there is a single optimal value w. Then in equilibrium $w = w_0$ and aggregate demand for labor is NL^*. If the supply of labor L_0 exceeds this value, firms are unlimited in the choice of w, the wage is equal to w^*, employment is NL^* and unemployment is $U = L_0 - NL^*$. If L_0 is less than NL^* the company's capabilities are limited and wages will be at the level at which labor supply and labor demand are balanced, and the labor market is clear.

Analysis of the model (2), (4), (5) shows that efficiency wages lead to unemployment. In addition, it follows from the model that changes in labor demand lead to significant changes in employment, while real wages and efforts remain unchanged. The firm's cost per unit of labor do not change. As a result, fluctuations of prices are insignificant in the short run. However, the model does not explain the behavior of unemployment in the long run. According to the model, real wages remain unchanged during the periods of economic growth, when labor demand increases and unemployment decreases. Thus, the economy achieves full employment, and further growth in demand leads to an increase in real wages. However, in practice, there is no apparent trend in the long-term unemployment rate.

L. Summers (1988) considered the effort function in the following form

$$e\ (w,\ \chi) = \{((w - \chi)/\chi)^{\beta},\ \text{if w} > \chi;\ 0,\ \text{otherwise}\}, \qquad (9)$$

where

$$\chi = (1 - bu)\ w_0, \qquad 0 < \beta < 1,\ \ b > 0. \qquad (10)$$

If $b = 1$, then χ is determined by the multiplication of wages paid by other firms to the share of the employed. If $b < 1$, then employees are less likely to be unemployed, in particular, with a sufficient level of unemployment benefit, or at periods when leisure is more important. For this functional form, the condition that elasticity of effort with respect to the wage equals 1 takes the form

$$\beta\ [w/((w - \chi)/\chi)^{\beta}]\ (w - \chi)/\chi)^{\beta-1}\ (1/\chi) = 1.$$

Hence,

$$\text{w} = \chi/(1 - \beta) = [(1 - bu)/(1 - \beta)\ ]\ w_0. \qquad (11)$$

In particular, for small values of β from (11) it follows that $w \approx (1 + \beta)\chi$. Therefore, the firm offers a premium that is approximately equal to the product of β by the index of labor market opportunities χ.

Being in an equilibrium, a typical firm pays the equilibrium wage w_0 and the equilibrium unemployment rate is equal to

$$u = \beta/b = u_{EQ}. \qquad (12)$$

From the model it follows that equilibrium unemployment depends only on the parameters of the effort function and does not depend on the production function. Therefore, improvement in technological capabilities does not lead to changes in the unemployment level.

Equilibrium effort is described by the formula

$$e_{EQ} = [(w_0 - (1 - bu_{EQ})w_0)\ /\ ((1 - bu_{EQ})w_0)]\beta = [\beta/(1-\beta)]^{\beta}.$$

The equilibrium wage is determined by marginal productivity and cost of effective workforce. Since in the equilibrium, the total unemployment is $u_{EQ}L_0$ and each firm employs $(1 - u_{EQ})L_0/N$ employees, then the equilibrium wage is equal to

$$w_{EQ} = e_{EQ}\ F'\ (e_{EQ}(1 - u_{EQ})L_0\ /\ N).$$

Since equation (11) implies that wage which minimize wage costs is a decreasing function of unemployment variable, the firm may want to reduce its costs during economic recession, when the unemployment rate exceeds the equilibrium level of u_{EQ}. Therefore, the firm wants to increase incomes by reducing wages and setting it at a level lower than equilibrium. In this case, the firm changes wage according to formula (11) and the cost per unit of effective labor equals

$$C_{ADJ} = w/e(w,w_0,u) = 1/(\beta^{\beta})\ [1/(1-\beta)^{1-\beta}]\ (1-bu)\ w_0. \qquad (13)$$

However, if the firm, despite economic downturn and rising unemployment, still pay equilibrium wage w_0 then its costs per unit of effective labor force are

$$C_{FIXED} = w_0 / e(w_0,w_0,u) = [(1 - bu) / (bu)]^{\beta} w_0. \quad (14)$$

The evaluation shows that $\beta = 0.05$ and $b = 1$. According to (12), the equilibrium unemployment rate u_{EQ} equals 5%. If the unemployment rate grows to 8%, then according to (13)-(14), depending on company's decision about wage level, labor costs decrease accordingly either by $\Delta C_{FIXED} = 2.5\%$, or by $\Delta C_{ADJ} = 3.2\%$. Therefore, if the firm decides to lower wages, it will be able to save only 0.6% of the funds. If the unemployment rate grows to 7%, then the cost changes are $\Delta C_{FIXED} = 1.8\%$ and $\Delta C_{ADJ} = 2.1\%$, with savings of only 0.3%. For $\beta = 0.03$ and b = 0.6, we also obtain $u_{EQ} = 5\%$. The values of C_{FIXED} and C_{ADJ} reduce by 1.5% and 1.9%, with unemployment rising to 8%. For an increase in unemployment up to 7%, we obtain unemployment 1.0% and 1.2% respectively. In this case, efficiency from lower wages is even less.

Instead, wages reduce by amount equal to a percentage reduction in employment divided by the elasticity of labor supply in case of competitive labor market equilibrium. In particular, assuming that the elasticity of the job offer is 0.2, and the employment rate reduce by 3%, the equilibrium wage reduce by 15% and leads to a 15% reduction in costs. Therefore, if the labor market is Walrasian, the firms would have more incentives to lower wages and prices.

Consequently, the efficiency wage model shows that relatively small amounts of β can determine a rather high level of unemployment, while incentives for firms to regulate wages or prices in response to changes in aggregate demand are low.

Researchers who investigate the labor market argue that one reason of wage rigidity is limited company's ability to control the quality of work. This forces them to stimulate increasing efforts and raise payments to their employees. This idea is in the Shapiro-Stiglitz model (Shapiro and Stiglitz,1984). The model is constructed for time continuity and involves solving the problem of maximizing the expected discounted utility of employees (Romer, 2012):

$$U = \int_0^{\infty} e^{-\rho t} u(t)\, dt, \quad \rho > 0, \quad (15)$$

where ρ is the discount factor that characterizes the preference relation of evaluating the usefulness of consumption and leisure in different periods of time. The function $u(t)$ is an instantaneous utility at time t defined as

$$u(t) = \{w(t) - e(t), \text{ if the person is employed; } 0, \text{ if person is unemployed}\}. \quad (16)$$

w denotes wage, e denotes effort of a worker. At each period, the employee is in one of three classes: employed and puts efforts (state E); employed and shirking (S); unemployed (U).

The model is dynamic and describes the ability of employees to move from one state to another. If an employee shows effort in the period t_0 the probability that he will work at the same job in period t is

$$P(t) = exp\ (-b(t - t0)\ ), \qquad b > 0. \tag{17}$$

From formula (17) it follows that for the employee who puts effort the probability of further employment during τ periods equals $e^{-b\tau}$ and does not depend on how long the employee was employed before. Thus, the loss of job for a employee who put effort is characterized by the Poisson process with the parameter b that defined the risk rate of losing work.

Usually it is assumed that the revealing by the firm the workers who shirking is also described by the Poisson process and occurs with the probability $P(t)=exp(-q(t-t_0))$. Employees who are caught in shirking are fired. If an employee is employed but is shirking the probability that he will work during τ periods equals the product $e^{-q\tau}$ and $e^{-b\tau}$. In addition, we assume that the share of unemployed workers who find work in each period equals a. Parameter a is an endogenous parameter of the model, and it does not depend on why the employee became unemployed and how long he was, and characterizes the employment rate, whichs related to the number of the employed, the firing rate and the number of the unemployed.

Behavior of the firm in each period is described by the profit maximization problem

$$\pi(t) = F\ (e_0 L(t)) - w(t)[L(t) + S(t)],\ \ F'(\cdot) > 0,\ F''\ (\cdot) < 0, \tag{18}$$

where L is the number of employed who put effort, S is the number of workers who are shirking. Therefore, the firm tries to set a high w and chooses L.

The values of $V_i (i = E, S, U)$ denote the value of the target function that characterizes the expected value of the discounted life utility of an employee who is in the state i in the initial period. Since transition between states is described by Poisson process, V_i does not depend on how long the worker was in his current state, nor from his past.

To find the values V_E, V_S and V_U we use the dynamic programming method. In particular, we investigate the equation

$$V_E(\Delta t) = \int_0^{\Delta t} e^{-bt} e^{-\rho t}\ (w - e_0)\ dt + e^{-\rho \Delta t}\ [e^{-\rho \Delta t}\ V_E(\Delta t) + (1 - e^{-b\Delta t})\ V_U(\Delta t)],$$

from which we obtain

$$V_E(\Delta t) = 1/(\rho + b)\ (w - e_0) + 1/(1 - e^{-(\rho+b)\Delta t})\ e^{-\rho \Delta t}\ (1 - e^{-b\Delta t})\ V_U(\Delta t).$$

Calculating the limit for $\Delta t \to 0$, we get the value

$$V_E = 1/(\rho + b)\ [(w - e_0) + bV_U]. \tag{19}$$

Accordingly, if an employee is shirking, we obtain

$$\rho V_S = w - (b + q)\,(V_S - V_U). \tag{20}$$

If an employee puts effort, the result is

$$\rho V_U = a\,(V_E - V_U). \tag{21}$$

From the model of the relationship follows that

$$V_E - V_U = e_0 / q,$$

indicating that firms set a high enough salary to allow its employees work and not be unemployed. As a result, employees receive a premium, which increases with effort e_0 and decreases with respect to q.

Solving a problem, we obtain

$$w = e_0 + \rho V_E + b\,(V_E - V_U) = e_0 + (a + b + \rho)\,(V_E - V_U)$$

and

$$w = e_0 + (a + b + \rho)\,e_0 / q.$$

Consequently, the wage needed to induce effort increases with respect to the parameters e_0 (efforts), a (the rate at which the unemployed find jobs); b (level of firings); ρ (discount rate) and decreases with respect to q (the rate of detection of workers who are shirking).

Denoting L_0 the total number of potential employees in the economy and N the total number of firms, we obtain the equation

$$w = e_0 + (\rho + b\,L_0 / (L_0 - NL))\,e_0 / q \tag{22}$$

that characterizes the wages that the firm has to pay to make employees effort as an increasing function of the employment level. Given full employment, unemployed workers find work instantly. Firing does not cause them any damage, therefore, wage that prevent from shirking does not exist.

If the firm closely monitors the effort of its workers, the point of the labor demand and labor supply curves intersection characterizes the equilibrium in the labor market. As result, we have the full employment. According to the Shapiro-Stiglitz model, in case of imperfect control, the equilibrium is the intersection point of the labor demand curve

$$e_0 F'(e_0 L) = w \tag{23}$$

and labor supply curve (22). In this case, the labor market demonstrated unemployment.

At the same time, unemployed workers tend to work with equilibrium level of wages established on the labor market and make a lot of effort than to remain unemployed. However, they cannot achieve wage cuts because firms

are aware that if they hire additional employees and pay them a little lower than equilibrium salaries, employees will not put effort and will be shirking. Therefore, wages do not decrease and unemployment does not disappear.

From the model, it follows that an increase in q shifts the curve (22) downwards and does not affect the labor demand curve. As a result, wages decrease and employment increases. If the probability of finding shirking workers approaches 1, then the economy goes to the state of Walrasian equilibrium and full employment.

Thus, the analysis of the model (15)-(18) reveals the factors of equilibrium unemployment and provides its justification, but it is impossible to predict the behavior of unemployment in the long-term period based on it. For the short term, the model offers one of the likely reasons why wages depend on fluctuations in product demand less than they could, but in this case, it does not allow obtaining numerical values.

In a number of papers, the extensions of the Shapiro-Stiglitz model has been studied. Modifications of the model, in which the working hours can be changing, explain the labor market problem. They often occurs during economic downturns and consider the firms that know how harmful unemployment is for employees. The firms prefer to reduce their staff and do not agree with them about part employment, reducing number of labor or reducing the length of working time for each employee (Christiano et al., 2004). With a decrease of work duration, the allowances that workers received earlier have been reduced that makes necessary to increase the salary needed to minimize work shirking. At the same time, if the firm fires some employees, the allowances of others will remain unchanged, therefore, increasing wages is not reasonable. Given this, in spite of the greater risk to employees, the firm may consider that the reduction is a better solution than labor division.

The extension of the model is also considered through the inclusion of various types of labor, some of which the firm can fully control (Bulow, Summers, 1986). In those sectors in which the firm is able to evaluate the quality of labor adequately, wages do not include allowances and are not efficient. At the same time, workers in the workplaces, which firm cannot control perfectly, get wages higher than the equilibrium level wage. The marginal product of such jobs is higher, and workers who have received such a job do not want to lose it.

Models that are also explored take into account the differences between employees with varying levels of commitment to work and different levels of education (Serban, 2012). Models show that firms do not want to hire employees with low commitment to work; therefore, such workers are predominantly employed in low-paid sectors with high staff turnover (Alexopoulos, 2004). At the same time, there are models in which remuneration for effort s resulted not only by wage increases, in particular, more complex mechanisms of compensation,

as well as penalties for shirking are investigated. Models of this type show that by resorting to imposing big penalties, the firm can force employees work qualitatively even with equilibrium wages. The models are considered in which recruitment is accompanied by an introductory contribution from the employee, therefore, one get a job more who agrees to pay for it (L. Carmichael, 1985).

Another explanation of the non-Walrasian characteristics of the labor market is the duration of relations and the validity of labor agreements between firms and employees. Firms do not hire new employees in each period because many jobs require long-term recruitment and knowledge of company's specifics. Workers agree to remain in their jobs until the benefits of work, which they hope to receive, remain more attractive than the external opportunities of alternative employment. Thus, due to long-term contracts, labor relations and employee guarantees may be more important than their current salary (Hall, 2005). Long-term labor relations predetermine certain rigidity of salaries. As a result, wages do not change in each period in response to labor market deviation from equilibrium.

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Lypets L.

PERSONAL NON-PROPRIETARY RELATIONS BETWEEN THE SPOUSES AS A POSSIBLE OBJECT OF MARRIAGE SETTLEMENT

At present the Ukrainian legislator determines that marriage settlement can regulate only the proprietary relations between spouses, in particular, paragraph 3 of Article 93 of the Family Code of Ukraine (hereinafter – the FC OF UKRAINE) states that "the marriage settlement shall not regulate the personal relations between the spouses and personal relations between them and children" [1].

We can easily understand such categorical statement because personal non-proprietary rights of all and citizen are inviolate, and noone, even close people cannot infringe them as it is guaranteed by the Constitution of Ukraine. Article 21 of the Constitution of Ukraine states the following: "All people shall be free and equal in their dignity and rights. Human rights and freedoms shall be inalienable and inviolable" [2]. Article 51 of the Constitution of Ukraine protects not only human rights, but the rights of the married person too: "Each of spouses shall have equal rights and obligations in the marriage and family" [2].

Thus, to the legislator's mind, if the FC OF UKRAINE has a provision permitting to regulate personal relations between the spouses by the marriage settlement, it will directly violate the Constitution of Ukraine, in particular: a spouse, abusing the trust, feelings or legal ignorance of another one, can amend the agreement by provisions that can infringe his/her rights guaranteed by the Constitution of Ukraine. In the result, family can find itself in a situation where "one spouse has only right and another one – only obligations". Besides, there exist many everyday situations that simply cannot be predicted in advance, namely: illness of a spouse; serious emotional state resulting from some hardships; change of work schedule in the result of which a spouse physically or clue to lack of time is unable to perform his/her everyday or other obligations. And another spouse demands from his/her "half" to fulfil his/her contractual obligations, and none law shall protect the injured party as the deprivation of rights of one spouse by another was made absolutely legally and voluntarily under the agreement.

Therefore, the legislator obliges to solve all family matters in personal non-proprietary sphere personally by spouses? without involving legal documents or third parties, including lawyers.

Following the legislator's thinking, we clearly understand why the FC OF UKRAINE contains strict limitations regarding the terms of marriage settlement.

Due to the abovementioned, every second marriage ends in divorce. At the same time, not all married couples are satisfied with their family life. And if they permit spouses regulate their personal non-proprietary relations by the agreement,

one person may opress the rights of another one (in particular, the rights of a spouse) for his/her own benefit.

We respect such legislator's opinion, but, to our mind, in many cases exactly such opinion infringes the rights of spouses. Researching all the abovementioned arguments, one can see that in many families which did not conclude the marriage settlement the rights of a spouse are abused, regardless of legislator's efforts to protect the interests of spouses. That is why during several millennia there exists the marriage settlement institution aimed to protect the rights and freedoms of both parties in marital relations.

We can see everyday situations when the spouses agree to divide everyday and other family obligations, and then in marriage all these obligations fall on the shoulders of one spouse only. In such cases only the marriage settlement may force the unfair spouse to fulfil his/her obligations under the agreement.

Some scientists have already compared marital relations with civil agreements that clearly helped highlight the problems and find solutions. In such case we consider as reasonable to compare the marriage settlement with labour agreement as, in our opinion, labour relations are quite identical to marital ones. Firstly, both areas of life are the most important for each person, and he/she devotes to them the majority of his/her life time. Secondly, both in the labour and marital relations proprietary and non-proprietary rights and obligations are closely intertwined.

Article 8 of the Civil Code of Ukraine (hereinafter – the CC OF UKRAINE) defines the following: "In case of failing to use the law analogy for the regulation of civil relations, they shall be regulated according to the general foundations of the civil legislation (law analogy)" [3]. Article 10 of the FC OF UKRAINE determines the following: "If some family relations are not regulated by the Code, other legal regulations or agreement (contract) between the parties, they shall be regulated by the norms of the Code regulating the similar relations (law analogy)" [1]. Personal non-proprietary relations as the object of marriage settlement are not regulated by any legal regulations of Ukraine, but only in the labour agreement institution, the analogy as below allow us understand better the expedience of regulating personal non-proprietary relations vra marriage settlement.

Human life has many areas that distinguish people and, at the same time, join people with similar world outlook or tastes in certain groups. For example, sports: some people go in for sports professionally, for others it is just a hobby or supporting a favourite football team in front of the TV. Similarly, the politics: for some people it is the meaning of his/her life and others do not have time for it or simply are not interested in it. People are distinguished by many factors, namely: property and social status, belonging to some religion or a political party, hobby and talents. But, there are two things that are common to all people

in the world: firstly, the desire to have the family; secondly, to earn a living doing what he/she likes. Each of us has family and different preferences as to profession. In both key areas of human life the legislator makes it possible to conclude the agreement to systematize the existing relations between the parties:

- Chapter III of the Labour Code of Ukraine foresees a possibility to conclude the agreement between the employee and the owner of an enterprise, institution, organization or authorized body or physical entity [4];

- Chapter 10 of the FC OF UKRAINE foresees the right to conclude marriage settlement by persons who have applied for registration of marriage, and by spouses [1].

The legislator confirms that marriage is a voluntary "according to paragraph 2 of the Convention on Consent to Marriage, Minimum Age for Marriage and Registration of Marriages "Marriage shall be entered into only with the free and full consent of the intending spouses" [5]. At the same time, "according to Article 43 of the Constitution of Ukraine "Everyone shall have the right to work, including a possibility to earn a living by work that he/she freely chooses or to which he/she freely agrees ... Using forced work shall be prohibited" [2]. Thus, both in marriage and in hiring people have some relations and absolutely willingly they make some arrangements concerning their further co-existence, and a written agreement is just guarantee that each party will fulfil its obligations. If such principle are consolidated in labour legislation, why it cannot be implemented in family legislation? The comparative table as below shows the similarity of features of the mentioned agreements.

The general principles of labour agreement and marriage settlement are almost the same. They only differ in several points, namely: the inability to impose sanctions for non-fulfilment of obligations under marriage settlement and the inability to regulate personal non-proprietary relations between spouses.

Analyzing the abovementioned, we observe a very interesting situation. Labour agreement can fix any restrictions and prohibitions regarding a person and, from the legislator's point of view, it is absolutely legal. But, the same or even much less significant restrictions fixed by marriage settlement is considered as a violation of human rights and freedoms and is strictly prohibited by the legislator. So where is the logic? The point is that legislators pay more attention to the branch of law and the name of the agreement fixing such prohibitions, but not to the essence of contractual obligations.

We put forward the abovementioned arguments to lay stress on the fact that in Ukrainian legislation personal relations can be an object of the agreement in principle, and conclusion of the agreement by parties is only concert on some aspects which are important for both parties. The majority of the Ukrainians, urban population, especially conclude many different agreements in their lives, for example: with mobile operators, travel agencies, banks, construction and

insurance companies, at work etc. Each agreement contains many obligations: to use the services of some mobile operator during a year, pay money to different organizations which provide services, even the labour agreement (or contract as a special form of labour agreement according to part 3 of article 21 of the Labour Code of Ukraine) [4], which is the most unpredictable agreement among all other kinds of agreements in Ukraine, and sometimes even meaningless. Nowadays, in the heyday of fashion and show business actors, artists, models, TV presenters and representatives of similar professions conclude agreements prohibiting them during definite time to marry, have children, become corpulent or lose weight, change a hairstyle and hair colour, use make-up or perfume of a certain brand, wear clothes of a certain style and colour (sometimes even in their time off), eat certain dishes etc.

Table 1

Comparative table of labour agreement and marriage settlement

Marriage settlement	***Labour agreement***
Determines a range of persons, legal relations with which constitute the object of the agreement, rights and obligations of its parties concerning each of these persons	
Parents of spouses, common children and children from previous marriages of each spouse, relatives who need special care etc.	*Top management, subordinates, staff, clients, partners, competitors etc.*
Constitutes proprietary relations between the parties of an agreement	
The rate of fee for maintenance of one spouse by another, frequency of such payments, alimony in case of a divorce etc.	*The rate of wage and frequency of its payment, rate and terms of dismissal compensation etc.*
Defines legal status of property owned by one or both parties of the agreement	
The use of real estate, separation of shares from the joint marital property, alienation of property by one of the spouses to the advantage of the third party, division of property in case of divorce etc.	*Ensuring the worker has vehicles, computers, mobile phones, clothing (for journalists, TV presenters and representatives of other public professions) etc., and the fate of such property in case of dismissal*
Establishes sanctions for non-fulfilment of contractual obligations for each party	
Sanctions are usually not imposed. There is only the right to take legal action	*Financial compensation and a possibility of judicial appeal of illegal acts of one of the parties*
Does not regulate non-proprietary relations between the parties	Regulates non-proprietary relations between the parties
Ukrainian legislation prohibits regulating personal non-proprietary relations between the spouses and between the spouses and children (paragraph 3 of article 93 of the FC OF UKRAINE)	*Working schedule, the issue of discipline, dress code, non-proprietary rights and obligations of each party, marital status (for some professions) etc.*

During the filming the famous TV series "Not Born Beautiful" under the agreement the key actress was obliged to wear brackets and spectacles without any health need, ugly clothes, shoes and hairstyle, and she was not permitted to use make-up more than onece year. The situation became complicated when the actress got married during the filming of the series. As the actress broke her obligations (in particular, she took off the spectacles, made good make-up and hairstyle, put on a wedding dress) she was forced to wear yashmak in public places because nobody should see her real before the end of filming. It is difficult to imagine the agreement that restricts human rights more. Thousands of such agreements are concluded each year in Ukraine. So does the marriage settlement under which spouses, for example, agree to conclude the religious marriage during the first five years of the marriage, shall limit the right of one of a spouse more than the abovementioned labour agreement?

The marriage settlement like any other agreement shall not deprive a person of his/her constitutional rights, including the right to life according to Article 27 of the Constitution of Ukraine, right to respect for his/her dignity – article 28 of the Constitution of Ukraine, right to liberty and security – Article 29 of the Constitution of Ukraine etc. [2] And this is important! But it is also quite naturally and legally to fix certain norms which are important for the relations of two persons. And the most important is that just the agreement may encourage each spouse to perform his/her family obligations and it will strengthen family and reduce the percentage of divorces. To our mind, exactly such purpose should be the main for the legislator in the family law sphere!

At present in Ukraine the material marriage settlement is not an agreement, it is something like a will: both can only determine the legal regime of property that becomes the property of some family member after a certain legal fact (in will – after death of the testator and in the marriage settlement – after divorce). Of course, the legislator permits to settle proprietary matters of spouses in the marriage by the agreement, but, in practice, the majority of spouses do not require clear separation of his/her share of the property from joint marital property in marriage. Typically, such need arises after the divorce. And Ukrainian legislator does not permit to include the issues regulating the sphere of marriage (everyday problems, upbringing children, family budget spending etc.) in marriage settlement. So, marriage settlement is concluded only by the spouses that are uncertain in sustainability of their marriage. And is it a purpose of the legislator? We think that it should remake "the agreement in case of the divorce", i.e. the marriage settlement, to real "marriage settlement".

In paragraph 1 of article 7 of the CC OF UKRAINE "Custom" they pointed that "civil relations may be regulated by the custom ... Custom is a rule of behaviour which is not established by civil legislation acts but applied to a certain area of civil relations. Custom may be specified in the appropriate document" [3].

Custom is an important level in law-making and many contractual relations. And family relations are no exception. Changing wife's surname to her husband's one is a custom. Dividing family and everyday obligations is also made taking into consideration the customs in family of the spouses. The list of possible family customs is endless, and if civil legislation permits to include custom in contractual relations, we can confidently confirm that personal relations between the spouses may be an object of marriage settlement.

Therefore, we consider it necessary to add several new kinds of marriage settlement to the family law system.

The first kind of marriage settlement is marriage settlement on legal changes. It is the agreement regulating only legal matters of the spouses, a decision of which is inevitable for each family. At the same time, the agreement should ensure that neither personal, nor proprietary rights of any spouse will be not infringed. For this purpose, the agreement should not contain provisions regulating everyday, inside and personal relations between the spouses and one or both of the spouses with the third parties. It should have the fixed list of norms that the spouses may regulate at discretion and by the mutual consent. The spouses also shall not have the right to increase or decrease the amount of norms or change the structure of the agreement. A sample of such agreement should be approved by the Ministry of Justice of Ukraine and it should include the following: 1) the surname of each spouse after registration of the marriage; 2) the surname of children of the spouses; 3) whether one spouse shall adopt the child/children of other spouse, if any; 4) a spouse (or other relatives) who shall register the maternity leave; 5) the residence of the spouses after registration of the marriage, and whether the spouses shall live together; 6) in case of separate residence who shall live with children; 7) relatives who shall have the right to live together with the spouses (permanently or temporarily); 8) who shall care for elderly or ill relatives, if any.

To reduce the likelihood of disputes on the agreement in future, it should be fixed for each norm of the agreement if it is constant norm (it lose validity only if the agreement is terminated or under the circumstances as below) or temporary one (the term of validity or the circumstances of losing the validity should be pointed).

Such agreement should also specify the circumstances, the onset of which shall entail changing the living conditions of the spouses (for example, parents of the spouses may move into their house in case of their illness or 80 year anniversary staying in room number 3 area of 12.5 square meters), etc.

Another king of the marriage settlement in family law system should be the marriage settlement on the personal relations between the spouses, the main function of which is regulation of internal (not legal) matters of the spouses.

You should not forget that marriage is a union of two different persons, who have their personal habits, tastes and needs. Often, the habits or hobbies

which are important for one spouse seem somewhat superfluous and unnecessary for another one. Moreover, people who grew up in different families have different upbringing, they have their own character. One family, for example, has clear division of obligations: wife is engaged in family life and husband earns money. In another family the spouses make everything together. Of course, children who have grown up in such different families will also have a different outlook. During registration of the marriage only agreement can help them to split all obligations and reach consensus. In text of the marriage settlement the spouses may look at their future family from different points of view and the most fairly split all family obligations, not forgetting to leave the place for their rights. Just the second kind of the marriage settlement is intended to regulate all the personal relations between the spouses, so it is very popular in many countries, including the United States and the Western Europe.

This agreement shall contain the terms that each spouse individually determines for himself/herself. The agreement can regulate the issue of holding religious ceremony of marriage (wedding) in the case of different religious faiths of the spouses, i.e. in which religion the children of the spouses shall be brought up, the issue of the family budget spending, etc.

I. V. Zhylinkova pointed the following: "Containing in the Ukrainian legislation prohibition to include the terms on the personal relations between the spouses in the marriage settlement is determined by two main points. Firstly, the personal rights and obligations of the spouses are established directly by the law, so they are inseparable from the subject, i.e. their holder. Secondly, the marriage settlement (as well as any other civil legal agreements) shall have an option to be done by force if the need arises" [6]. So, it makes no sense to include in the marriage settlement the terms (we mean the non-proprietary obligations) that are unable to force to perform by the spouses. For example, who will force the spouses to wash dishes?

The answer is very simple: the foreign lawyers determine the marriage settlement as an extremely specific agreement, and therefore they realize that some terms of the marriage settlement, which are personal in nature, do not always have an opportunity to be done by force. From the family law point of view, in many countries the marriage settlement enables the spouses (the intending spouses) accurately formulate their expectations from marriage, determine the nature of their future relations and relations with others, friends, activities, etc. So, such kinds of terms are included in the marriage settlement to encourage a proper behaviour of the spouses in the marriage but not for their enforcement [6].

Moreover, we believe that such norms shall greatly facilitate the work of judges in Ukraine during delivery of a judgment to maintain one of a spouse by another in the divorce. Paragraph 5 of article 25 of the FC OF UKRAINE defines the following: "A spouse who unworthy behaved in marital relations does not have the right to maintenance..."; during delivery of a judgment on relieve of a

person from obligation to maintain a stepdaughter, stepson – paragraph of article 268 of the FC OF UKRAINE defines that "The court may relieve a stepfather, stepmother from the obligation to maintain a stepdaughter, stepson or limit it to a certain period, particularly in the case of unworthy behaviour in marital relations of mother or father of the child" [1]. But, the legislator does not give a definition of the "unworthy behaviour" relying on the discretion of the judge, who in turn is guided by generally accepted stereotypes on the unworthy behaviour, although each family individually understands this concept. Thus, in this case the marriage settlement should be a reference point for a judge determining what kind of behaviour each family defines as unworthy based on the terms determined in the agreement. For example, the judge may include treason, abuse of alcohol, etc. to the unworthy behaviour taking into consideration his/her own thoughts on this concept. At the same time, a wife can think that the unworthy behaviour may be the habit of a husband to smoke in the presence of a minor child or wife who is sick with asthma causing the worsening of his/her health and even risk to life.

S. Ya. Fursa researched very important question, i.e. the effect of the marriage settlement between the spouses, who constitute a regime of separate residence. To S. Ya. Fursa's mind, the effect of the marriage settlement should be terminated during the regime of separate residence of the spouses. As the marriage settlement shall be certified by notary, it should stop its action also in notarially [7]. We think that such norm should be inserted in the Ukrainian legislation together with the institution of separation. Because the spouses who do not live together and have no common household can not perform their obligations under the marriage settlement. I. V. Zhylinkova, in her turn, offers to separate independent kind of the marriage settlement – the marriage settlement in case of separation or separate residence [6].

We agree with this point of view as constitution of the regime of separation is really significant change of family principles and habits which can not be regulated by the "primordial" marriage settlement.

To confirm the above mentioned thoughts we would like to propose a model of the marriage settlement of separate residence of the spouses existing in the US.

To the American legislator's point of view, the spouses constituting the regime of separate residence regardless of financial status, length of stay in the marriage and other circumstances, face with the problems called by the American lawyers as "TOP 10 separation". The rest problems of minor importance are determined individually for each family. So, here is the fixed list of 10 issues which according to the US family law should be determined in the separation agreement: 1/ a spouse who will live in the marital home and a spouse who will leave it; 2/ a spouse who will live with children and terms of visits of children by another spouse. Optionally, the spouses can specify such clause by the following

provisions: a spouse with whom children shall spend their holidays; a spouse with whom children shall spend their free time; a spouse who shall take children to school, kindergarten and who shall meet them there; a spouse who shall draw up medical certificate in case of illness of a child; a spouse who shall have additional and/or unforeseen expenses connected with a child (medical treatment, education, clubs, sports sections, etc.); if the regime of separation was established in different countries – if children can visit another country with one of the spouses; if a spouse who left home shall pay utility bills or rent for the house where another spouse lives; a spouses who shall pay the debts and credit made by the spouses in the marriage; if a spouse who left home shall enter the building freely and whether he/she shall have the keys of the house, where another spouse lives – in other words, the last two points can be combined into one point – the regime of house using; expiration date (for all period of the regime of separation, for a specified period) and conditions of termination of the separation agreement; a purpose of the regime of separation (the lawyers consider that the answer to this question is necessary in the divorce); if a spouse who does not live with children shall pay alimony to children and another spouse; what is the deadline for the spouses to reconcile with the start of the regime of separation; if any spouse shall be a heir during the regime of separation.

We consider this model of the separation agreement suitable to the Ukrainian legislation and these issues could be included in the marriage settlement "in case of divorce".

I. V. Zhylinkova things that the marriage settlement may be also concluded for other purposes like solving the proprietary matters if the spouses living separately decide to reconcile. In this case simple cancellation of the agreement on separate residence is not always sufficient. Thus, the parties are offered to conclude a special agreement on reconciliation. In particular, there the spouses may fix the regime of community on the property which they acquired during the separate residence, to determine the shares, redistribute them in future property, take on the additional obligations, etc. [6]

From the legal point of view and in terms of convenience the Unitary electronic register of the marriage settlements, their termination, renewal, amendment, denouncement and cancellation, proposed by S. Ya. Fursa, could be the best solution for all parties of the agreement, for the notary public certifying the agreement and amendments to it, judges making decisions on the disputed, etc. [7]

The technologic process in the world and, in particular, in Ukraine, permits to use the progress in order to make easier the work of lawyers and the parties of the agreement. As argument we would like to give an example of using the modern technologies to conclude the marriage settlement.

On March 21, 2004 Kfar Saba Cohen, a judge of the court in family cases in Israel, certified the agreement between the spouses on their proprietary relations

by the phone, but not in the courtroom at the time of their presence, as is usual. The situation was following. The spouses gave the agreement to Cohen, a judge in family cases, to certify it, but they could not be present during its certifying in court. Instead, they stayed at the Israeli consulate abroad and requested to certify the agreement by phone in the presence of the Israeli consul who confirmed the judge their presence at the consulate. The judge said that, firstly, today in Israel there is a trend to certify the agreements between the spouses by courts in family cases, and, secondly, the development of progress gives an opportunity to certify the agreements by various kinds of communication without being present in court.

We should also consider the marital relations of the spouses who live together, have common economy, but who had not registered in the state organs of registration as actual ones. Besides the standard marriage settlement, in foreign countries they also distinguish the marriage settlement of the actual spouses.

If the actual spouses register the marriage in further, the agreement concluded earlier is automatically remade into the marriage settlement, unless otherwise is specified by the parties [6].

The national legislation does not recognize such norm as it does not contain the direct reference in the FK OF UKRAINE to conclude the agreement on chummage, but it does not deny it: according to paragraph 1 of article 6 of the CC OF UKRAINE "The parties shall be entitled to enter into agreement not provided by the civil legislation acts but complying with the general foundations of the civil legislation" [3], but such agreement will not be considered as a kind of marriage settlement and all the more it will not be remade into the marriage settlement after registration of the marriage.

Today in Ukraine there are about 17 million families, but every year a number of the registered marriages decreased (from 462 000 in 1969 to 428 000 in 2017). Sociologists think that the main reason of such situation is reluctance of many young couples to register their relations.

With refutation of the Soviet administrative norm prohibiting the illegitimate chummage, much more couples do not want in general or temporarily register their relations being in the actual marriage. But the most of them wish clear regulation of their rights and obligations by the appropriate agreement. Thus, the agreement on chummage would help the both parties to determine the regime of joint and private property of each of them, scope of the mutual rights and obligations. In fact, as we have already mentioned, the parties shall be entitled to enter into agreement not provided by the civil legislation acts, but through the legal ignorance many citizens are unaware of the right to conclude such agreement. Therefore, insertion in the FC OF UKRAINE and CC OF UKRAINE the direct norm to permit persons residing together to conclude the agreement on chummage would allow many people to realize their right to regulate their relations by the agreement.

An interesting feature of the marriage settlement is the inability to impose sanctions for non-fulfilment of the contractual obligations. Among all civil agreements it is only one agreement that does not provide an opportunity to the injured party to protect its rights. The FC OF UKRAINE as well as any other legal regulation in the family law area does not foresee responsibility of the parties of the marriage settlement. Thus, unfair spouse may fulfil his/her obligations only after the appropriate court decision without any financial or moral punishment. We consider such position of the legislator as absolutely wrong because thus it stands back from the general civil law principle to grant the injured party the right to protect his/her rights. According to paragraph 1 of article 1166 of the CC OF UKRAINE "Proprietary damage resulted from the illegal decisions, acts or inactivity towards the personal non-proprietary rights of physical or legal entity as well as damage inflicted to the property of physical or legal entity shall be indemnified in full by a person that inflicted it" [3]. Article 1167 of the CC OF UKRAINE also foresees the responsibility for moral damage: "Moral damage to physical or legal person resulted from illegal decisions, acts or inactivity shall be indemnified by a person that inflicted the damage, in case of his/her guilt ..." [3] Thus, the civil legislation provides for responsibility for both material and moral damage. So, the spouses can also determine the moral and material responsibility for non-fulfilment of the contractual obligations, however, within the Constitution of Ukraine.

During 26 year existing the institution of the marriage settlement in the post-Soviet legislation the marriage settlement has undergone certain changes, and it continues to experience them today. This kind of agreement is gradually gaining more supporters and, to our mind, in future it will enjoy even greater demand of the intending spouses and the married couples. So, in future lawyers will have a lot of work to improve such important and meaningful to family law institution.

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