

SCHUMPETER'S INNOVATIONS AS THE MAIN FACTOR OF ECONOMIC DEVELOPMENT

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This paper gives arguments the powerful innovation activities ensure a rapid economic development of the countries. It is shown the recent facts confirm the Schumpeter's theory of economic development and it means that only innovation activities can provide the real economic development. Author concentrates attention on the conceptual meaning of Schumpeter's innovations as an isolated factor of economic development which creates a new added value and which may become a kind of 'a stem cell' of the new mainstream of economic theory as it was put forward by Schumpeter. The paper considers hypothesis that disregard of phenomenon of "innovation" as exogenous isolated factor of economic development led to the arising gap between the fundamental economic theory (mainstream) and the real innovation processes of modern economic life. The distinction of Schumpeter's theoretical approach from Neoclassical logic lies in its recognition of the inner forces of the market system which condition the economic crises of capitalism, and that technological innovations ensure the overcoming the crisis state as well as they have been crucial for recovery and economic growth. However this factor always has been remaining in the shadows when the core methodological construct of mainstream theories had been forming.

Key words: Schumpeter's theory of economic development, Innovations, Economic development, Factors of economic growth, Basic textbooks in Economics, Transitive economy.

I. Introduction.

Innovation and technological changes have continuously ensured the added value creation and have given the means to overcome economic crises. Such approaches were developed by Josef Schumpeter more than 100 years ago (Schumpeter, 1934). The distinction of this approach from the majority of other known conceptions is revealed by Schumpeter's category of "Innovation" as a separate factor to added value creation. But traditionally, in many publications, including those by Schumpeterian followers, innovations are analyzed and considered as a means of increasing productivity of given resources such as the Capital, Labour, and Total Factor Productivity (TFP). But such works do not include direct recognition the ideas of Schumpeter's regarding the "Innovation" as generator new value and resource that is the separate to the mentioned canonical aggregate production factors. In quantity of isolated factor the "Innovation" has become a primary factor of economic development. The majority of publications address innovation models of economic development, innovation activities and

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corresponding economic policy as a separate subject but the Neoclassical Economics has not done it. This situation has determined an important research agenda to elaborate the methodology of the new concept that we call the “Political economy of innovation development”.

The distinction of Schumpeter’s theoretical approach from Neoclassical logic lies in its recognition of the inner forces of the market system which condition the economic crises of capitalism, whilst also determining recovery and economic growth. These forces are technological innovations. Without these forces national economies will inexorably come to a crisis point; progressive technological change can help overcome such crisis and stimulate economic growth. In the general sense we consider two contradictory approaches to explain the nature of economic growth and business cycles – Neoclassical and Schumpeterian. The first believes in the efficiency of general equilibrium supporting the constants of main ratios between output, investments, consumption, and employment: this methodological path does not pay special attention to the proportions of the national economy’s technological structure. Conversely, the Schumpeterian approach does pay attention to the emergence of technological innovations and the economic structure of sectors with a different level of innovation technology. Josef Schumpeter referred to these two attitudes as the “Statics” and “Dynamics” stages of cyclical economic development. According to Schumpeter, the real economic growth can only be found upon the “Dynamics” stage.

The theory of economic development according to Schumpeter is a theory that denotes fundamental changes to the current state of affairs: a leap into a new quality (new combination), which is mostly impossible to foresee. Hence, it is important to focus particularly on the fact that in order to ensure long-term economic growth of a country it is necessary to form new production structures on a base of innovation technology, rather than transform traditional production structures. Traditional production structures are important for the preservation of existing scopes of national product and the support of operations in the mode of economic “Statics”, but the “Dynamics” mode of economic systems is directly related to innovation development and the corresponding growth of that country.

II. Contradiction between mainstream theory and real economic life.

The modern basic fundamental textbooks on Macroeconomics and Economics virtually do not demonstrate the Schumpeter’s theory of economic development as a separate independent paradigm of theory. Its representation there is limited by rather superficial references to the

metaphor on innovative “creative destruction” and the importance of entrepreneurship. The works that attempted to build mathematical models of Schumpeterian theory of economic development, mostly tried to insert the factor of innovations into existing neoclassical models through modification of the traditional production factors. In our opinion, the lack of attention to the Schumpeter’s category of innovations in the main macroeconomic theories can be explained by the fact that these theories did not identify “innovations” as a separate isolated specific production factor in economic development.

Comparing the scale of presence of the “innovation development” topic in the modern real economic policy and practice, especially in the developed countries, and level of attention to this subject in fundamental economic theories, we can easily recognize a big difference in favour of real policies and practices. This gap needs explanation in itself and raises the question: “Does the modern economic theory fulfil its practical function?”. Fundamental economic theory and the theory of innovation activities must exist in organic combination to help solve the current problems of economic theory and practice alike and create the methodological basis with a view towards the formation of an effective economic development policy.

As it is well known, the recognized analytical and statistical publications of the leading international organizations specifically designed for monitoring the R&D and innovation practices demonstrate impressive volume of innovation activities in the economies of developed countries. As example we can take to the latest issues The Organisation for Economic Co-operation and Development (OECD 2015; World Bank 2014), The United Nations Conference on Trade and Development (UNCTAD 2011), European Union (European Commission 2015); respected analytical publications of the National Science Foundation (NSF) in the USA (National Science Board, 2016) and resonant innovation ranking of countries by the World Intellectual Property Organization (WIPO), Cornell University, and the European Institute of Business Administration (INSEAD) (Cornell University et al 2015), etc. These are the general worldwide reports. The global pool of publications on the topical issues of the innovation policies of individual countries, industries and enterprises includes thousands of books, articles, reviews, etc.

The phenomena of “innovations” and “innovation activities” are presented here as an independent core object of analysis and policy. It should also be pointed out that the authors of the mentioned publications clearly recognize this object (innovations) as a key factor of economic development in different countries, regions, and business.

The current mainstream of fundamental economic theory as a rule has avoided adequately assessed the meaning and methodological potential of Joseph Schumpeter’s economic

development theory. A huge gap has been formed between the practices of application on the ideas of this theory and studying and research of Schumpeter's theory in the fundamental economic concepts, especially in Universities. The validity of this statement on University education was confirmed by the special study that we carried out together with I. Pisotska (Bazhal and Pisotska 2012). We analysed the content of many of current basic text-books on macroeconomics, economics, economic development, etc., which are used by the leading Universities around the world. However, we did not find any sections devoted to complete coverage of the Schumpeter's theory. At best, it was possible to find a brief mention of the existence of the phenomenon of innovations in economy, and also find of a very popular Schumpeter's metaphor about innovations as "creative destruction." To confirm this conclusion, we additionally provide examples from several reputable publications.

In the first editions (the 1990s) of the macroeconomics textbook for undergraduate programmes by Prof. N. Gregory Mankiw, widely spread and used in many countries, the category of innovations and the name of Joseph Schumpeter are not mentioned in the Index (Mankiw 1997). In the recent eighth edition of this textbook, which consists of 625 pages, we can see that the category of innovation is still missing, but there is already a two-page-long comment on the famous metaphor of Joseph Schumpeter about "creative destruction" (Mankiw 2013, p. 257–258). The Index of the world-famous macroeconomics textbook for Master's and Ph.D. programmes of David Romer has absolutely no references to the innovations and Schumpeter (Romer 2012).

The same is true for the modern fundamental works on Political Economy. In the Subject Index of the fundamental work on 775 pages by Allan Drazen Political Economy in Macroeconomics (Drazen 2000), the term innovations is absent, and in Author Index, we find the name "Schumpeter" only with one attribution for two rows of text with mentioning about the political cycle. In the recent volumetric resonant book in 685 pages of Thomas Piketty 'Capital in the Twenty-First Century' (Piketty 2014), we can recognize the same: in Index the term of innovations is absent, and the name of Schumpeter is mentioned only once for two rows of text about the fact that Schumpeter allegedly wrote that socialism would inevitably triumph over capitalism. In fact this is not true, but in our context, it is a wonder that Pikkety did not notice the Schumpeterian theory of economic development, in which the category of innovations is the key factor of economic growth and where there are many other social and economic findings. The similar picture can be observed in other recognized fundamental books (Agenor and Montiel 2015; Reinhart and Rogoff 2009; Liu and Premus 2000). In recent times the textbooks with small sections for the Schumpeterian models have appeared. But they are devoted not to clarifying the

essence of Schumpeter's theory, but rather to attempts to include the phenomenon of innovation in the traditional neoclassical models of economic growth.

III. Explanation lack of 'innovation' in mainstream theory.

In our opinion, lack of attention to the Schumpeterian category of *innovations* in the main macroeconomic theories can be explained by the fact that these theories did not identify this category as a separate isolated specific production factor in economic development, as it is supposed by the theory of Schumpeter. Various theoretical doctrines interpret visible phenomena of *innovations* as components of traditional factors of the aggregate production function: Labour (L), Capital (K), and Total factor productivity (TFP). In conceptual economic literature, it is mainly believed that innovations influence economic development either through the increase of productivity of the Labour (L) factor or through an increase in the amount of productivity of the Capital (K) factor through its accumulation.

However, even extraction in the neoclassical production function of a separate variable, which reflects the characteristic of changes in productivity of factors L and K, which was named Total Factor Productivity (TFP), essentially left the traditional production factors L and K as the main endogenous variables of resources for economic development both in the neoclassical models of economic growth and in the imagination of many experts. It is also possible to mention that TFP as factor and as exogenous variable of production function cannot exist independently from factors L and K that present the proportions of the initially derived aggregate production function, because TFP reflects the changes in productivity of these factors (Aghion, Howitt, 2009).

According to Schumpeter the *innovations* are a new separate isolated production factor which promotes economic growth and the existing regardless of the initially available factors L_0 and K_0 that were before the implementation of the *innovations*. *Schumpeter innovations* create a new production function, in which the proportions of production factors are already qualitatively different (K_{in} and L_{in}), and the nature of their interaction in the new production function changes. In this case, *innovations* become a separate factor of country's economic development and as the factor that creates new value, which increases *the Wealth of Nations*. In such quality *innovations* becomes a new economic category proposed by Schumpeter in his theory of economic development.

In publications belonging to the *mainstream* economic theories, the phenomenon of *innovations* is considered primarily as novelties, which help to increase the productivity of the existing production resources (L_0 and K_0). However, analysing in this perspective, they often make a reservation that these novelties can fail to increase the wealth of the country, if the unemployment

caused by those novelties rises and, paradoxically, they can even cause an economic and financial crisis of relative overproduction. Such an influence of innovations drew attention of many researchers, starting with the classics: David Ricardo's labour theory of value and respective analysis on influence of machinery on economy (Ricardo 2004 [1821], Ch. 31); then the K. Marx with his *The General Law of Capitalist Accumulation* (Marx 1992 [1867], Ch. 25), other Classics economists, and then Neoclassics, Keynesians, etc.

Now again several newest influential approaches interpret *innovations* as the potential threat of unemployment. For example, this is the worldwide-recognized conception of "Industry 4.0" (Schwab 2016), and in Ukraine there are some analytics who recognize embedded innovations as a source of economic crises (Ryaboshlyk 2014).

The main doctrines of *Political Economy* mainly considered this last type of impact of *innovations* on economy, when the productivity of existing production resources increases. Therefore, the *mainstream* theories did not associate the growth of country's wealth with the *Schumpeter innovations* as a specific production factor that exists independently and different from the traditional production factors L and K , while their proportions were derived using retrospective data analysis to construct aggregate production functions. The history of *Political Economy* shows that in this methodological framework, without the *Schumpeter innovations*, crises of the economic theory always appeared. The mainstream theories, changing one another, without involving the factor of *Schumpeter innovations* quickly had exhausted their explanatory capacity and practical value. But exactly *Schumpeter innovations* led to appearance of new resources and products, and related new production functions, and... new *mainstream* theories.

However, current empirical studies and facts of real economy prove the correctness of the methodological considerations of the Schumpeter's economic development theory, showing more and more evidence of the decisive value of Schumpeter's category of *innovations* as a generator of new economic reality for dynamic economic growth.

IV. Recognizing the main factor of economic development.

Today the numerous empirical studies demonstrate the economy which focuses on recovery and development of traditional production patterns (pattern of "Statics"), i.e. on distribution of available resources, cannot significantly increase its wealth and social wellbeing in the long run because the development of traditional competitive markets eventually restricts the formation of new added value. Microeconomic neoclassical theory confirms this conclusion, with regard to certain product markets – marginal profit in such markets should tend toward

zero. Therefore, sustainable growth of the national (gross) added value can only ensure innovative development which, actually, shall determine the type of economic development called “Dynamics” by Schumpeter.

A mere increase in scopes of output of traditional productions, even in the mode of increase in labor productivity, shall not provide a strong long-term resource for dynamic development of the country or its regions. It is difficult to percept Schumpeter’s ideas mostly due to a belief in neoclassical canon, in which attainment of an equilibrium state of Pareto-efficiency is the ultimate aim and the objective function of a successful economy. However, the format of analysis of economic “Statics”, i.e. economic development on the basis of traditional production structure, reflected in empirically found production functions (i.e. functions found according to data of previous periods), still remains a methodologically weak spot of neoclassical theories of economic growth. Such methodology of analysis of economic processes cannot predict (and explain) the state of the economy occurring on the basis of the innovation technologies that change the production function itself.

An increase in productivity of the given labor and capital resources (Total factor of productivities) is the central production factor representing innovation activity in these models. In endogenous theories, such an increase in productivity shall be specified as factors of human capital, patent activity, financing of research and development etc. However, the growth in productivity of traditional resources shall be determined with regard to comparative products (pre-existing products). Therefore, this refers to economic “Statics” again. That is why modern Neo-Schumpeterian conceptual approaches assume that such an economy shall definitely come to a crisis of relative overproduction and start to degrade, and its rescue and development would be ensured only by the evolutionary innovation leaps in the form of technological revolutions (Freeman, 1982; Perez, 2002). Innovative technological changes shall alter the production function itself and, therefore, Neo-Schumpeterian theories shall justify the importance of holding innovative restructuring of the economy as a central direction of the country’s economic policy. In view of the above, the state management of processes of structural changes related to different types of technologies, particularly, with an emphasis on developing high technologies, is deemed extremely important.

A post-industrial economy in fact is a Schumpeterian economy. The denotation “post-industrial” means that we tell about new goods, not goods that existed in previous times. In relation to industrial products they are *innovations*. Moreover, a characteristic feature of post-industrial development is the economy requires constant appearance of *innovation* that has caused the formation of knowledge economy. It is why the methods for extrapolating the

quantitative parameters of the trends that have been established over quite a long period of time (“Statics”), usually mostly do not provide quantitative parameters for determining a development prospective (“Dynamics”). Moreover, innovation processes at the time of their emergence and quite a short “life” occur against the background of existing interdependencies between economic characteristics, which have been formed during previous years, therefore innovation processes are not presented into the existing statistical time-series correlations and, respectively, they cannot be adequately reflected by traditional methods of macroeconomic analysis.

As the events of the last quarter of the XX century demonstrated, Neo-Schumpeterian theories can adequately explain the nature and driving forces of modern post-industrial economic development. In this regard, attention can be paid to the fact that this is paradoxical enough: Schumpeterian conceptual approach is barely studied in University programs, but de-facto it lays at the heart of economic strategies and current policies of developed and dynamic successful countries. The economic strategy of the European Union is a vivid example. Ten-year strategies – the Lisbon strategy (2000-2010) and next the “Europe 2020” strategy – actually represent the Schumpeterian and Neo-Schumpeterian concept, where new knowledge and innovations are recognized as the main driving force of economic development (European Commission, 2010; Bazhal, 2013; Carayannis, 2013). These strategies make an emphasis on the fact that along with implementation of traditional goals of macroeconomic policy – attainment of macroeconomic stability, improving the efficiency of available resources and support of employment – today the leading role is assigned to those challenges associated with facilitating an accelerated transition to an innovative knowledge economy.

Also there is a similar significant disparity in the implementation of the principles and tools of innovation policy into national programs and strategies in developed countries, from one side, and in developing countries. The rich countries are developing of the national innovation systems and have created a model of knowledge economy. Countries which are outsiders of economic competition are waiting for better times to implement innovations. This difference is especially evident in the countries, which follow the guidelines of the “Washington Consensus” in the economic policy.

In our opinion, the failures of neoclassical macroeconomic tools in explanation the role of *innovation* in economic growth have caused the dissemination of multicriterion ranking methods in comparison of the levels of economic development different countries, regions, companies etc. An especially big number of such ratings appeared with regard to assessing the competitiveness of national economies and innovation activity. Actually, such methods represent a completely different analytical approach than in neoclassical methods of strategic forecast. It is not a search

of functional dependency between certain economic indicators in order to have a possibility of extrapolation of variables of certain statistical function for future periods, but the search and assessment of such characteristics of a social and economic system that will provide an advantage for one country (region) over the others in the future.

The ranking approach is similar to the methodology of assessment of economic efficiency of investment projects, when we do estimates of comparative efficiency of implementation of certain projects. In this case there exist only relative advantages of one option over the other. The same occurred earlier during the “marginal revolution” with regard to the pricing theory – denial of existence of one “right” price for the goods. Therefore, today the substantiation of peculiarities of post-industrial development takes place mostly (if not to take into account expert subjective forecasting methods) through determination of potential of relative competitiveness of a country or region.

V. Empirical evidences that innovations are main factor of growth.

The ranking approach has a weak point associated with multiplicative expansion of the list of characteristics used to assess competitiveness. This stipulated the demand to form an integral index of many parameters in order to return a clear conclusion about competitiveness. But the integral index turned out to be unsuitable for the purpose of improvement of economic policy. Such characteristic does not help to elaborate needed measures of certain economic policy to improve competitiveness. If we will take as goalposts the rating of hundred indicators, it becomes impossible to form right policy because a budget constraint existence. This actually means a return to the beginning of analysis and setting of tasks to develop every aspect of the social and economic system that, actually, disallows questions on priorities and key areas. But, we have found interesting result of one empirical investigation giving us the evidence that innovation activities can play role as integrated indicator of the country’s competitiveness and economic success.

We mean the results of studies that were published in the annual Global Competitiveness Report of the World Economic Forum (Davos, Switzerland) in 2002, and they remained unnoticed in the scientific community. Multi-criteria researches of economies of different countries were held for the purpose of determining the roles of different factors, influencing their competitiveness (over 100 indicators), on which basis an interesting conclusion was made: the overall global level of competitiveness of the country can principally be reflected as aggregate in one indicator – the number of utility patents (i.e., patents for invention) granted by The United

States Patent and Trademark Office per million population. The summary analysis of positions of competitiveness of the countries by dozens of parameters demonstrated basically the same result of assessment as the result by the mentioned single parameter which characterizes directly the innovation processes in the country related to the post-industrial development. Having this in mind, the mentioned report proposed of classification taxon – “key technologically innovative countries”, to which were reckoned among countries according to the criterion to have 15 and more such patents per million populations (Cornelius, Blanke, Paua, 2002). In 2001 there were 24 such innovative countries. They turned out far ahead of other countries by mentioned indicator.

In subsequent Global Competitiveness Reports, this indicator was used only as one of the sub-indices of “innovative factors” and was not considered as the synthetic characteristic of country’s competitiveness in post-industrial economy. That is why we have performed a testing of the viability of the conclusions made in 2002 using the more recent data (The Global Competitiveness Report 2011–2012 because after that the used indicators were changed).

For such analysis two parameters for 76 countries were compared in 2010: the number of used patents issued by the US patent office per million population and relevant GDP per capita as calculated at the current exchange rate. In 2010 the same 24 countries as in 2001 reached the criterion of 15 patents per million populations, and the gap with the nearest country in the rank list had remained essential. The last of the key innovation countries was Italy with a figure of 29.9 followed by Slovenia with 12.0. To compare, in Ukraine this characteristic makes only 0.3.

The next step of analysis was the search of statistical dependency between these two series of parameters. No representative correlation dependency was found, but we obtained a very informative, in our opinion, diagram of the paired comparison of values represented, which is actually a matrix of McKincey-General Electric, where an analytical comparison of the competitive position of the company and attractiveness of its activity is given. In our case, the competitive position of the country is represented with an indicator of US patents utilized per million populations, and the attractiveness of economic activity is represented with the country’s wealth parameter: GDP per capita (Figure 1).

The diagram clearly demonstrates the lack of correlation dependency between these two parameters, but two areas can be traced which allows to make analytical conclusions. If we separate those areas where GDP per capita exceeds USD 30 000 and the rate of patents per million population exceeds 20, we will get an indicative material for analytical conclusions

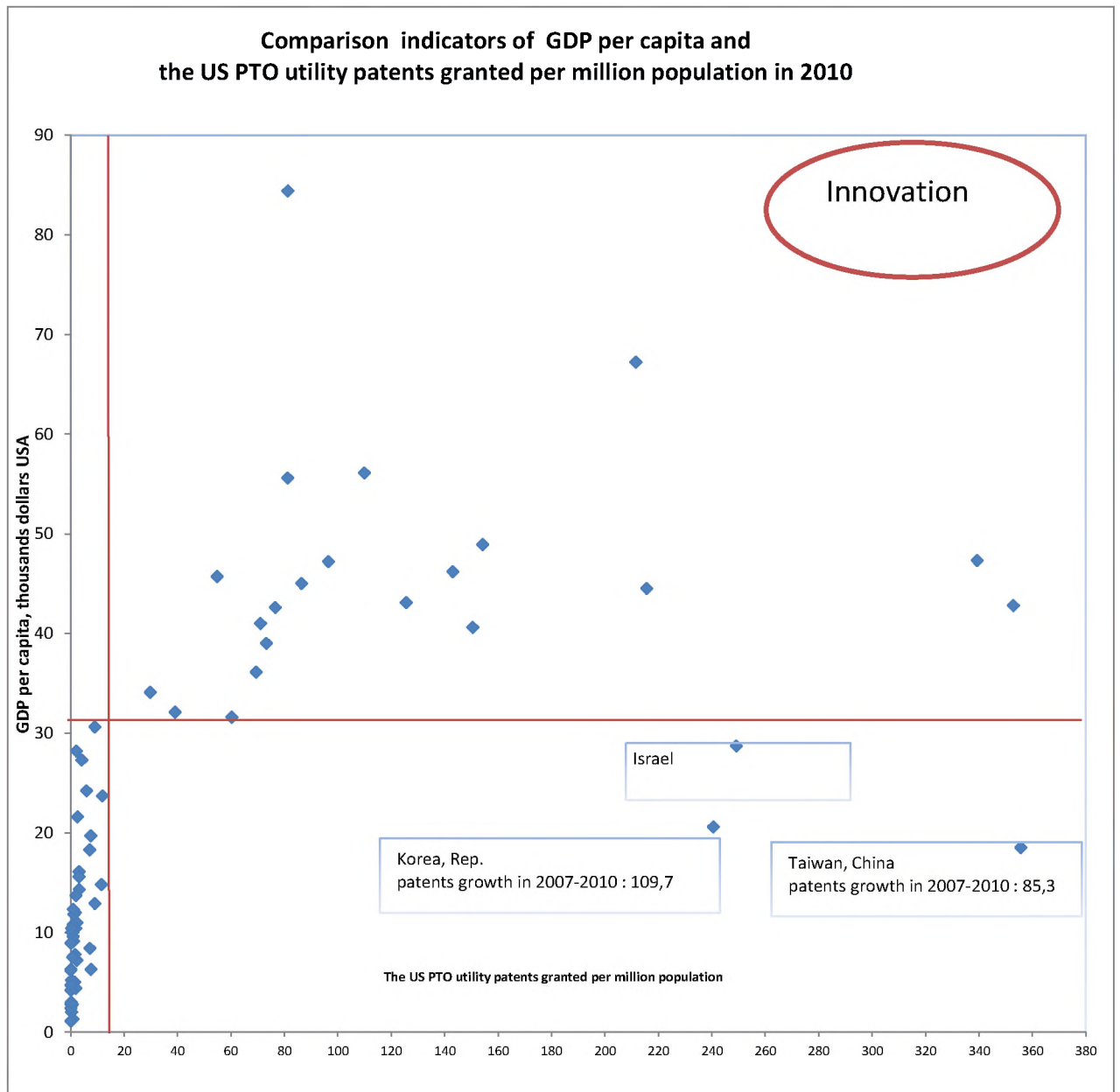
First of all, it gives proof of the credibility to Schumpeterian hypothesis about of innovative nature of economic development. The rich countries with a GDP per capita over USD 30 000, all provide active innovation performance. Some “innovation-oriented countries” such as Taiwan, South Korea and Israel are behind developed countries according to indicator of GDP per capita, but it can be noted that these countries have got the highest growth rates of innovative activity in the area of transfer of new technologies through the applying of technological patents (our patent indicator have increased in these countries respectively by 85.3, 109.7, 91.1 for the last three years, at norm of 15) allowing these countries rapidly were growing and to decrease of GDP gap with the rich countries.

As we can see from Table 1, in order to ensure a dynamic catch-up development mentioned successful countries, that twenty years ago belonged to the group of underdeveloped countries, demonstrate their strong activity in the area of implementation of advanced technologies through the patenting system.

If we take Italy, which closes the list of key innovative countries, as a basis for comparison with dynamic developing countries shown in Table 1, we can see impressive picture of main factor of their successful growth. All this countries excel Italy in the increasing of parameter analyzed, and such countries as South Korea, Taiwan and China went ahead of Italy in the growth of the number of patents over the last 15 years 14 times, 8.8 times and 4.1 times respectively. An even greater contrast is demonstrated when comparing the successful paths of these countries in technological innovations with the post-Soviet states, including Ukraine.

The data given shows that the keys to solving development problems lie in innovation activities regarding the implementation of innovative technologies, which, as analyses show, mainly belong to the latest technological paradigms. Phenomena and examples given reflect the major qualitative differences of the innovation type of economy (an economy of Schumpeter’s type) from industrial type (an economy described in the neoclassical theory). The fundamental neoclassical axiom about restricted resources starts becoming not realistic in terms of knowledge resources of innovation development. Firstly, they become unrestricted in case of their permanent creation; secondly, it is difficult to maintain a long-term monopoly, that is, absence of saturation innovation markets in contemporary conditions; thirdly, the existing resources are constantly replaced by innovation resources that may also belong to other owners. Under such circumstances, the economy goes to the non-equilibrium states.

Figure. 1. Comparison of indicators of GDP per capita and the number of the US PTO utility patents granted per million population in 2010 for 75 countries.



Source: drafted by the author from The Global Competitiveness Report 2011–2012.

Table 1 Number of invention patents granted by the US PTO to the citizens of the states which demonstrated dynamic development for 1995-2010

Country	1995	2000	2005	2010	Growth for 1995-2010
South Korea	1 166	3 331	4 364	11 655	10 489
Taiwan	1 624	4 704	5 114	8 233	6 609
China	168	326	744	3 213	3 045
Italy	1 092	1 702	1 315	1 840	748
Israel	392	789	934	1 839	1 447
India	40	141	401	1 143	1 103

Source: National Science Board, 2012

Named features of innovation economy can be also generalized in theoretical terms as the following representations: neoclassical attitudes describe the economic processes and policy regarding to pre-existing markets and phenomena, while the post-industrial Neo-Schumpeterian theory of innovation development (Elgar Companion to Neo-Schumpeterian Economics 2007; Dosi 2012) tries to develop visions and tools to manage processes and phenomena which do not exist today, but will emerge tomorrow and will determine the future economic development at both macro and micro levels. Thus today it is very important provide policy in which main priorities of the strategy of economic development concern to formation and effective using the knowledge resources for producing innovations.

VI. Conclusions

A distinctive feature of the innovation economy is the production of new products and services that had not been produced earlier. The Schumpeter's theory of economic development and the Neo-Schumpeterian concepts as well as actual economic practice of the last decades proves that a dynamic economic development of the country is possible only in an innovation model of economic growth. Preservation and conservation of traditional production structure, i.e. reproduction and development only of pre-existing enterprises, even of the very successful ones, may have only a short-term positive effect. In the long run, such policy shall lead to economic crisis and stagnation.

In this sense the Neo-Schumpeterian conception of technological paradigms is very fruitful and such theoretical approach is proved by practice. All developed and dynamic

countries have proved the correctness of that conclusion. Thus, it is important to recognize of objective character of Schumpeterian theory in order to support building the effective national innovation systems (UNESCO, 2010). The advantages of the modern technological innovations cause the existing economic and technological gap between rich and poor countries. But those advantages may and must be used to the overcoming of such gap and inequality.

The progress of the advanced countries is primarily ensured by development of innovative production structures that belong to current and future technological paradigms. In a broader sense, the history of human civilization shows that those countries which tried to maintain their competitiveness only due to expansion and improvement of the existing production structures, even if they were highly competitive at a particular time, became outsiders of the world economic system. In contrast to this, the focusing policy actions on generating and mastering of innovation technologies, which create condition to produce of new commodities and services, allowed ensure the dynamic economic development.

It is necessary to strengthen the development strategy for new industries of economy and production structures belonging to the post-industrial economy. Major attention in this strategy shall be paid to the formation of resource potential for generation of innovations that cause the formation of new companies, create new jobs in the regions and new markets in the international context, rather than to recover traditional production structures. For this purpose the first role shall be assigned to measures aimed at developing innovation potential, strengthening of education and science, formation of infrastructure for transferring innovative technologies, support of innovative activity in all the areas as well as its wide international integration in education, research and innovative areas.

The innovation model of economic development provides a completely new methodological framework as compared to the industrial one. Fundamental difference is that innovation development can be successful without critical dependency of acquired earlier and natural resources of the territory. The main resource of such type of development is innovative knowledge – it may be developed quickly enough not only in those regions where a given resources have been historically formed, but also in those regions that fall behind. On this way there appear a number of new dynamic regions, which quickly found their innovative way up to prosperity, having started from weak competitive positions.

The above processes may be effective if supported by the state through the formation of relevant institutions. New innovation business cluster turned out to be the most successful institution, where the process of technology transfer is carried out in new organizational forms. The transition from linear hierarchical management systems which serviced vertical and

horizontal production cooperation, to the systems based on implementation of principle of self-realization of individual small innovation companies and non-linear management relations.

The efficiency of cluster production structures mostly begins to depend upon the state innovation policy which shall create a favorable institutional environment for the growing number of cooperative relationships between companies, universities and research institutions of the region, country and the world. In this process the role of incentive instruments, which may be offered by the state, increases by far. Tax benefits must create incentives for not a mere company, but a whole production system, which may make a significant impact upon economic development of both the region and the country. Mastering the achievements of a new technological paradigm mainly occurs through the formation of new creative enterprises, which ensure progressive structural changes in the country and to create new competitive advantages.

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