



THE EFFECT OF CULTURAL AND ECONOMIC CONDITIONINGS ON INNOVATIVENESS IN ECONOMICS

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ABSTRACT

Purpose - *The aim of the study is to identify factors conditioning the innovativeness of countries and regions, those well-developed and less developed ones as well. The analysis will be performed regarding different aspects for European and Asian countries and the United States of America. The analyses will be performed on the basis of the indices and data collected in Global Innovation Index 2012. The work will also present an analysis of the influence of corporate culture on innovativeness, as well as a study of innovativeness in Polish enterprises against the international perspective.*

Design/methodology/approach - *The comparative analysis in the following aspects:*

1. GDP per capita
2. The Global Innovation Index
3. Hofstede Culture Index

The research was focus on the comparison of five countries: Poland, Slovenia, Thailand, Ukraine and USA. The examples was selected not as a random sample but the criteria refer to the variety in values, and innovation dimensions as well as America, Asia and Europe representations based on the triad influences.

Findings - *It is clear that different business environments and culture environment exist throughout triad partners and it influence different innovation approach development.*

There are national culture values strengthening and limiting innovations. Analysing Organizational culture models – in Poland, Slovenia and Ukraine the high power distance and high uncertainty avoidance can be the barriers, in Thailand – long term orientation helps to built life long innovative approach and in USA high individualism and low avoidance of uncertainty helps to generate innovations.

The awareness of organizational culture supporting and limiting values should be used in every day management and international cooperation.

The interrelations of organizational culture and economics phenomenon are of great importance not only for a certain company but also on macro level and it worth to analyze the relations in more details. It shows the need of further research focused on the mutual influences analysis.



The analysis of the collected data indicates that countries with higher score in Global Innovation Index 2012 exhibit a higher level of regional development.

Research limitations/implications - *The research and theory on cross-cultural comparisons is then limited to the acknowledgement that cultural differences exist. The models which have been created to evaluate the transferability or application of theory to a different culture can identify some areas in which problems may be expected but they cannot prescribe methods or techniques to be used in another culture. More intensive research which investigates how culture influence innovation on macro, micro and project level and what leads to effective innovation development in different cultures may lead to working out more useful models. At the moment any cross-cultural application must be made with great care.*

Originality/value - *The authors explain the importance of identification of factors conditioning the innovativeness of countries and regions.*

Keywords: *innovativeness, cross culture comparison, culture dimensions, economic development, national innovation system, economic conditionings*

Classification: *Conceptual/Research paper*

INTRODUCTION

At the time of globalization the existing sources of economic growth, such as relatively low labor costs, availability of cheap resources or favorable geographical situation are insufficient. It is necessary to search for new sources of the competitive advantage, and developmental tendencies in highly developed countries show that the only way to guarantee permanent development is to build up a competitive advantage based on knowledge and innovations. Moreover, it is believed that innovativeness is a multidimensional phenomenon which should not be perceived merely as a linear transition from research activities to launching a new product on the market.

Innovation has been introduced into formal economic growth models in 1957 by Robert Solow, a professor at MIT. He was awarded a Nobel Prize in Economics for this and related work in 1987. Solow defined growth as the increase in GDP per hour of labour per unit time. According to theory, innovation gives a chance to increase a competitiveness and economic growth of country.

The aim of the study is to identify factors conditioning the innovativeness of countries and regions, those well-developed and less developed ones as well. The analysis will be performed regarding different aspects for countries such as Poland, the USA, Thailand, Slovenia and Ukraine. Additionally, an analysis will be carried out to study the effect of the level of innovativeness on the economic development in these countries. The analyses will be performed on the basis of the indices and data collected in Global Innovation Index 2012.

The work will also present an analysis of the influence of corporate culture on innovativeness, as well as a study of innovativeness in Polish enterprises against the international perspective.



NATIONAL INNOVATION SYSTEM

Innovativeness is one of the factors which have an essential effect on the level of economic competitiveness. Innovation capacity has been widely acknowledged as a critical force to national economic growth for developed countries (Nelson 1993, Porter 1990). Competition and innovation are important for the countries in building up the innovation capability as they provide possible pathways to accelerate the process of technological catch-up as well as sustain productivity growth and competitiveness (Porter 1998). Clearly observed differences among particular countries at the level of innovativeness of their economy provided us with an impulse to analyze the agents conditioning their degree. Conditionings concerning the development of innovations are determined by economic, cultural, social and technological factors which are characteristic of individual countries, economies or regions. Although it is commonly argued that countries need to innovate in order to grow and achieve success, it is important to know which factors determinate this. Innovation capacity can be defined on micro (company level) or macro (a national level).

National innovation capacity may only be considered via a properly functioning national innovation system (NIS). The term was coined by C. Freeman and developed in the following years (Lundvall, 1992; Nelson, 1993; Edquist, 1997).

In OECD countries, NIS was standardised and analysis of technology performance and policies has traditionally focused on inputs (such as expenditures on research and development and the number of research personnel) and outputs (such as patents) (OECD, 1997).

The national innovative capacity framework seeks to integrate three perspectives regarding the sources of innovation: ideas-driven growth theory, microeconomics-based models of national competitive advantage and industrial clusters, and research on national innovation systems. While these perspectives contain common elements, each highlights distinct drivers of the innovation process at the national level¹.

An innovation system is a network of organizations, enterprises, and individuals focused on bringing new products, new processes, and new forms of organization into economic use, together with the institutions and policies that affect their behavior and performance (World Bank 2006).

National innovative capacity is not the realized level of innovative output per se but reflects more fundamental determinants of the innovation process. Differences in national innovative capacity reflect variation in both economic geography (e.g. the level of spillovers between local firms) as well as cross-country differences in innovation policy (e.g. the level of public support for basic research or legal protection for intellectual property (IP)).²

The actual output of innovation in terms of new goods and services or improved processes is already captured in the gross domestic product (GDP) and the National Income and Product Accounts (NIPAs). The amount and type of investment that lead to innovation, however, are

¹ Stern S., Porter M.E., Furman J.L. (2000), The Determinants of National Innovative Capacity, Working paper 7876, Cambridge, Massachusetts, National Bureau of Economic Research, pp.4.

² *Ibid.*, pp. 900.



not captured. This type of information is needed to improve our understanding of economic growth³.

ORGANIZATIONAL CULTURE CONTEXT OF INNOVATIONS

The era of globalization and the economy based on knowledge creates new challenges for management. Innovation have to be developed faster and more effectively. All the determinants supporting innovative economy and enterprises have to be analyzed and organizational culture is one of the leading ones.

In the literature there are three following levels at which innovation has been researched:

- The macro—focusing on the source of impact of innovation within economies and industries;
- The micro and company – investigating on how companies manage innovation and the advantages that brings them in terms of competitive advantage, revenue and profits;
- The project level looking at the management of innovation projects, particularly new product development.

The organizational culture impact on all three levels is important, although it has not been examined in the macro context very well. The paper tries to fulfill the gap presenting comparison of pro - innovative indicators as well as the organizational culture of selected countries.

One of the key themes underlying the analysis of the issues discussed in this paper is cultural difference in the context of influencing innovation.

There is the view that that the factor, which influence on innovation is organizational culture (Carmeli, 2005). Since it influences employee behaviour, it may lead them to accept innovation as a fundamental value of the organization and to feel more involved in the business (Hartmann, 2006). Consequently, the literature considers organizational culture to be one of the factors that can stimulate the most an innovative behaviour among the members of the organization Furthermore, we suggest that different organizational cultures will be required depending on the innovation models in various countries.

Regarding organizational culture, there is an agreement in the literature about its importance for innovation (Chang & Lee, 2007, Lau & Ngo, 2004, Martins & Terblanche, 2003, Mumford, 2000, Obenchain & Johnson, 2004)

There have been some attempts to separate cultural differences from other environmental differences in research (Saha, 1993; Easterby-Smith et al, 1995) but their overlap in most models for cross-cultural comparisons remains problematic. Hofstede (1996) states that systems and culture are part of the same circle; this would imply that there is no need to separate local environment from culture. However, this assumes that political and economic structures and systems in a country arise from a consensus - then these could be seen to represent an articulate part of national culture.

³ Rose S., Shipp S., Lal B., Stone A. (2009), Frameworks for Measuring Innovation: Initial Approaches, A. Working Paper #06, Athena Alliance, Science and Technology Policy Institute, pp.1.



As culture represents or expresses values, behaviours and attitudes, it is important to understand cultural differences in order to understand which management methods will work, and how to develop innovation.

There are many manifestations of cultural differences. These are evident in national and regional differences in style, taste, family relations, government structures etc. There is also evidence of differences in working methods and business organisation from one country to another: German co-determination, Japanese management methods etc. The following are a few examples of definitions and methods used to compare cultures.

Hofstede (2010) defines culture as “collective mental programming of human mind which distinguishes one group of people from another. This programming influences the patterns of thinking which are reflected in the meaning people attach the various aspects of life and which become crystallized in the institutions of society” .

Hofstede’s method of analysing culture was derived from a survey of work values conducted at IBM between 1968 and 1973. The four dimensions concerned attitudes to authority, group membership, risk and competition versus co-operation. Later work led by Bond at the Chinese University of Hong Kong added a fifth dimension: Confucian dynamism (Bond et al, 1987). The basis of this model is that the dimensions can be measured and compared. The dimensions represent a system of values which are related to behaviour, management practices and methods of organising systems. Schein (1992) disagrees with these methods - he replaces values with ‘basic assumptions’ which are both taken for granted and non-negotiable (p16). Schein does not agree that cultural assumptions (or values) can be broken down and measured by a survey method.

Culture then is described as something - orientations (Trompenaars, 1993), values (Hofstede, 1980) or assumptions (Schein, 1992) - which is shared by a group of people. There are different groups which can be considered, such as national groups, occupational groups, industry groups and firms. This gives rise to different ‘cultures’ - that is national business culture, occupational culture and corporate culture. It is clear that people from different cultures do some things differently, for example, they may speak differently and/or treat one another differently. From the models described, it emerges that different approaches to innovation would prevail in different cultures.

Hostede’s dimensions are probably the best known and most frequently used but Hofstede himself criticises many of the applications of his questionnaire. The model has a certain elegance - four or five dimensions which can be compared along straight line continuums, some of which have been shown to be related to preferences for different organisational systems as well as to economic development. However, the questionnaire is not designed for ‘one-off’ measures in a given country.

ORGANIZATIONAL CULTURE INDICATORS

In Hofstede’s original research data was collected from a large multinational business corporation (IBM) with subsidiaries in 64 countries. This initial structure consisted of four individual cultural value dimensions.

The first one is *power distance* (PDI). According to Hofstede (1980), power distance is the extent to which the less powerful individuals in a society accept inequity in power and consider it as a normal. In high power distance cultures, individuals respect their superiors and avoid criticizing them, while in low power cultures, it is acceptable to challenge superiors, albeit with respect. The second dimension is *individualism versus collectivism* (IND), reflecting the degree to which a society views its members as individuals or as group members. In individualistic cultures, individuals are mostly concerned with their own interests, while in highly collective countries, they are not defined by their own actions but rather the group's actions. The third dimension is *masculinity versus femininity*. The first one is described as cultures where the dominant values are expected to be ambitious, assertive and competitive, while in feminine cultures there is a dominance of values such as "friendly atmosphere, position security, physical conditions" (Hofstede, 2001, p.281). The last dimension is uncertainty avoidance presenting the degree to which people in a culture generally prefer structure to risk (Hofstede, 1984). Societies high in uncertainty avoidance feel anxious by situations that are unstructured, unclear and unpredictable, while cultures low in this dimension are reflective, less aggressive, relatively tolerant, and unemotional.

The fifth dimension was added by Michael Harris Bond (Chinese Culture Connection, 1987) and was originally labeled "*Confucian dynamism*". It refers to time orientation on life and work and with the long one there is the preference for delayed reward versus the instant one. The most recent Minkov (2007) proposed three new dimensions: Exclusionism versus Universalism, Indulgence versus Restraint, and Monumentalism versus Flexhumanity.

Table. 1. Organizational Culture of countries.

Country	PDI	IND	MAS	UAI	LTO
Poland	68	60	64	93	32
Slovenia	71	27	19	88	-
Thailand	64	20	34	64	56
Ukraine	very high*	low*	low*	very high*	-
USA	40	91	62	46	29

Source: G. Hofstede, G.J Hofstede, M. Minkov, (2010) *Cultures and Organizations: Software of mind: Intercultural Cooperation and its Importance for Survival*, 3rd ed. London: McGraw-Hill, pp.255-258.

*A.Sitko – Lutek (2004), *Kulturowe uwarunkowania doskonalenia menedzerów*, PWN, Warszawa.

MEASUREMENT OF INNOVATION

For national innovation system the relationship between innovation inputs and outputs seems crucial. Countries and market agents aspiring to strengthen innovation performance must be efficient in transforming innovation inputs into innovation outputs.

In order to measure national economies' innovation, attempts at standardisation utilising various definitions and data collecting methods have been in progress. Numerous organisations such as OECD, Eurostat, Statistics Canada, Statistics Sweden, INSEAD and

World Intellectual Property Organisation (WIPO) have developed guidelines for the development of innovation indicators.

It is also noteworthy that there exists no perfect set of indicators applying to innovation policies. However, such indicators constitute a useful tool for making international comparisons. The innovation index could also help assess what a country ought to do in order to boost innovation, resulting in fostering economic growth and stimulation of the creation of new workplaces. Furthermore, the innovation index highlights policy challenges – national policies to craft new national innovation strategies. However, conditionings will not replace analyses aiming at establishment of correlations and causal dependencies.

Due to its influence upon economic progress and competitiveness, innovation is a fundamental phenomenon both for developed and developing economies. Innovation is more complex and multidimensional and the level of innovation is not solely influenced by R&D expenditures, which constitute one of the many conditionings.

Innovation is important for driving economic progress and competitiveness – both for developed and developing economies. Many governments are putting innovation at the center of their growth strategies. There exists awareness that the definition of innovation has broadened – it is no longer restricted to R&D laboratories and to published scientific papers. Innovation could be and is more general and horizontal in nature, and includes social innovation and business model innovation as well. It is seen as crucial for inspiring people, especially the next generation of entrepreneurs.⁴

Innovation is important for driving economic progress and competitiveness – both for developed and developing economies. Many governments are putting innovation at the center of their growth strategies. Second, there is awareness that the definition of innovation has broadened – it is no longer restricted to R&D laboratories and to published scientific papers. Innovation could be and is more general and horizontal in nature, and includes social innovation and business model innovation as well. It is seen as crucial for inspiring people, especially the next generation of entrepreneurs.⁵

In order to evaluate and analyse the innovation of national economies, methodology and data collected in “Global Innovation Index 2012. Stronger Innovation Linkages for Global Growth” report will be utilised. The report was compiled by INSEAD and the World Intellectual Property Organisation (WIPO, a specialized agency of the United Nations). In this 5th edition of report, the knowledge partners consisted of the Confederation of Indian Industry, Booz and Company and Alcatel-Lucent. The realisation of Global Innovation Index (GII) was launched by INSEAD in 2007 in order to develop a tool allowing for measurements of nations' innovation. The GII adopts a broad notion of innovation, originally presented in the Oslo Manual developed by the European Communities and the OECD⁶. GII model includes 141 economies, which represent 94.9% of the world's population and 99.4% of the world's GDP (in current US dollars)⁷. The advantage of the study lies both in the

⁴ The Global Innovation Index 2012, Stronger Innovation Linkages for Global Growth, edited by Dutta S., INSEAD and the World Intellectual Property Organization (WIPO), 2012, pp.4.

⁵ *Ibid.*, pp.4.

⁶ *Ibid.*, pp.5.

⁷ *Ibid.*, pp.6.

number of countries the study encompassed and the amount of statistical data collected and applicable to a more in-depth analysis in the present paper. Moreover, the GII helps to create an environment in which innovation factors are under continual evaluation, and it provides a key tool and a rich database of detailed metrics for refining innovation policies⁸.

As regards Global Innovation Index 2012, countries such as Switzerland, Sweden, Singapore and United Kingdom occupy leading positions.

In order to evaluate the influence of economic factors upon the level of innovation, countries of various sizes and level of development were selected. The USA, Poland and Slovenia were selected from among high income economies, Thailand from upper-middle economies and the Ukraine from low-middle economies⁹. Global Innovation Index for the selected countries was presented in Table 2. Individual categories can be scored 0 to 100.

Tabele 2. Global Innovation Index ranking for studied countries.

Country	Rank	Score (0-100)
United States of America	10	57,7
Slovenia	26	49,9
Poland	44	40,4
Thailand	57	36,9
Ukraine	63	36,1

Source: authors' own study based on data from the Global Innovation Index 2012.

The Global Innovation Index (GII) relies on two sub-indices, the Innovation Input Sub-Index and the Innovation Output Sub-Index, each built around pillars. Each pillar is divided into three sub-pillars and each sub-pillar is composed of individual indicators, for a total of 84 indicators¹⁰. The data used in a raport are from 35% from 2010, 21% from 2009.¹¹

ANALYSIS OF ECONOMIC CONDITIONINGS INFLUENCING INNOVATION OF THE STUDIED COUNTRIES (BASED ON GLOBAL INNOVATION INDEX 2012)

For the purpose of Global Innovation Index 2012 evaluation the research team selected individual conditionings which, based on the team's experiences, influence the level of innovation¹².

⁸ *Ibid.*, pp.4.

⁹ Categorisation as regards the value of income was conducted by World Bank Income Group Classification (April 2012).

¹⁰ More in: The Global Innovation Index 2012, Stronger Innovation Linkages for Global Growth, edited by Dutta S., INSEAD and the World Intellectual Property Organization (WIPO), 2012.

¹¹ *Ibid.*, pp.5.

¹²Based on: The Global Innovation Index 2012, Stronger Innovation Linkages for Global Growth, edited by Dutta S., INSEAD and the World Intellectual Property Organization (WIPO), 2012.



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Global Innovation Index 2012 conditionings influencing the level of innovation were divided into 7 pillars. The analysis of their influence upon the selected countries' innovation was carried out.

Global Innovation Index 2012 report specifies the following pillars:

Institutions

Institutional framework, which encourages and facilitates development of innovative activities for businesses and R&D institutions, is fundamental for innovative development of a country. Moreover, good governance and the correct levels of protection and incentives are essential for innovation. The Institutions pillar captures the institutional framework of a country.

This pillar includes 3 sub-pillars¹⁴:

- political environment,
- regulatory environment,
- business environment.

Among the analysed countries, institutions pillar had the greatest influence upon the level of innovation in United States of America and Slovenia. In case of the Ukraine, the factor exerted an unfavourable influence on the level of innovation. Figure 1 presents scores for individual countries.

¹³ *Ibid.*, pp.5.

¹⁴ *Ibid.*, pp.44.

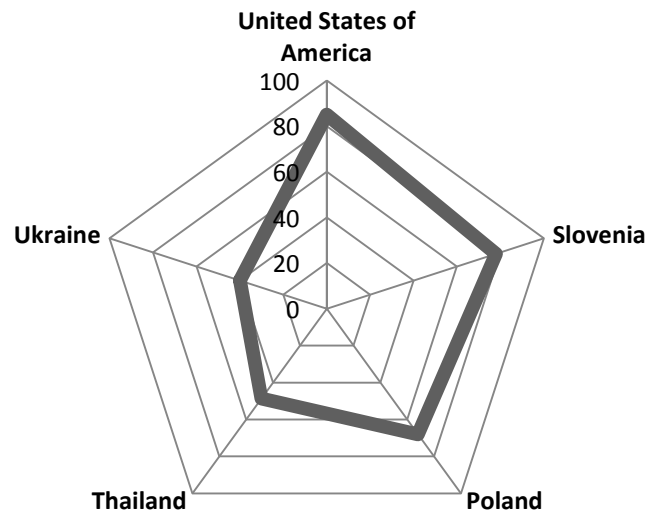


Figure 1. Scores for individual countries as regards Institutions pillar.

Source: authors' own study based on data from the Global Innovation Index 2012.

Political environment, including political stability and government effectiveness, is of strategic importance as regards the development of innovation. Data indicate that for low-income countries such as Thailand and the Ukraine, the factor exerts unfavourable influence upon the level of innovation.

Business environment also belongs to factors influencing the level of innovation. It defines the ease of starting and resolving a business and also the ease of paying taxes. In case of the Ukraine, this particular factor hinders the development of innovation, which seems to have found confirmation in results of the study. The country ranked 137th among 141 evaluated countries. As a consequence of troublesome tax-paying procedures, Poland also ranked among the low-scoring countries (95th out of 141 countries).

Human capital and research.

Education system in the country, tertiary education and well-developed research and development area constitute an important factor influencing the innovation capacity of a nation. In GII 2012 report, the following sub-pillars encompass the pillar¹⁵:

- education,
- tertiary education,
- research& development.

This factor influences the level of innovation in USA and Slovenia the most, which was presented in Figure 2.

¹⁵ *Ibid.*, pp.44.

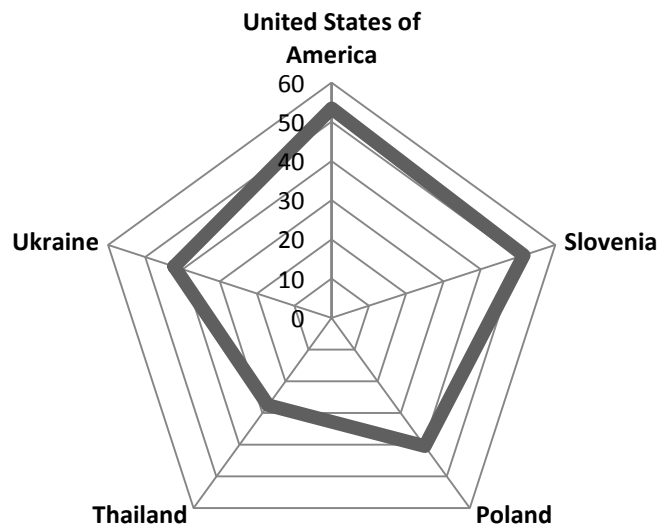


Figure 2. Human capital and research pillar- ranking for the individual countries.
Source: authors' own study based on data from the Global Innovation Index 2012.

Education system was evaluated the highest for Slovenia (ranked 14th), Poland (30th) and USA (31st). Thailand ranked the lowest (97th position) among the evaluated countries. Tertiary education, on the other hand, influences the innovation of the Ukraine the most. In case of Thailand it constitutes the factor exerting an unfavourable influence upon the country's innovation.

Research and Development is an economic factor conditioning the innovation of a country. As regards the factor, USA ranked the highest (12th position) and Thailand the lowest (84th position). Gross expenditures on R&D (%GDP) considerably influenced these scores with USA ranking 9th and Thailand 82nd.

Infrastructure.

The development of infrastructure, good and environmentally friendly transport and energy infrastructure facilities present opportunities for the search of innovation and its sources which may serve increased productivity and efficiency, lower transaction costs, better access to markets, and sustainable growth. This pillar includes 3 sub-pillars¹⁶:

- ICT,
- general infrastructure,
- ecological sustainability.

Figure 3 presents scores for individual countries as regards the development of infrastructure. Infrastructure, in particular information&communication technologies which support innovative processes, exerts positive influence on the level of innovation in USA. In case of the Ukraine, the factor has unfavourable influence upon the level of innovation, in particular

¹⁶ *Ibid*, pp..44.

ecological sustainability (110th position in the ranking) and general infrastructure (98th position).

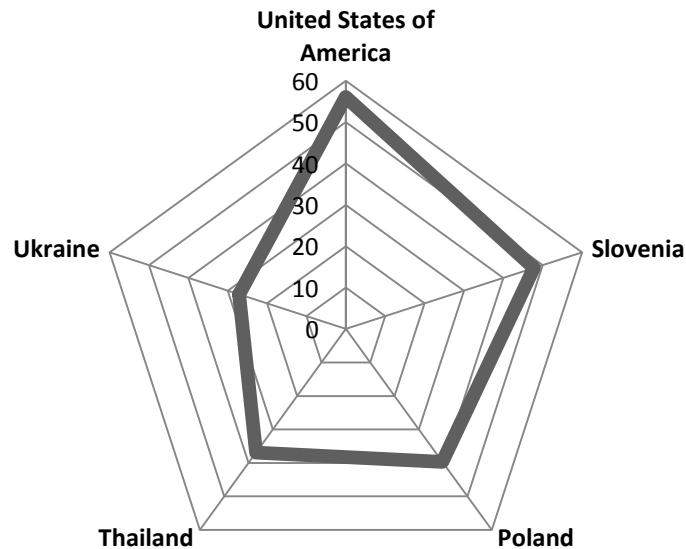


Figure 3. Ranking for the individual countries as regards Infrastructure pillar.
Source: authors' own study based on data from the Global Innovation Index 2012.

Market sophistication.

During the economic slowdown the factor gained importance for the development of innovation. The availability of credit, investment funds, and access to international markets are crucial for entities who desire to develop their innovation. This pillar includes 3 sub-pillars¹⁷:

- credit,
- investment,
- trade&competition .

The factor significantly influenced the level of innovation in USA which ranked 2nd in the ranking. USA boast ease of obtaining credits and high total value of stock traded. As regards the Ukraine, the factor exerted unfavourable influence (68th position) especially concerning protection of investors and intensity of local competition. Figure 4 presents values of the factor for individual countries.

¹⁷ *Ibid.*, pp.44.

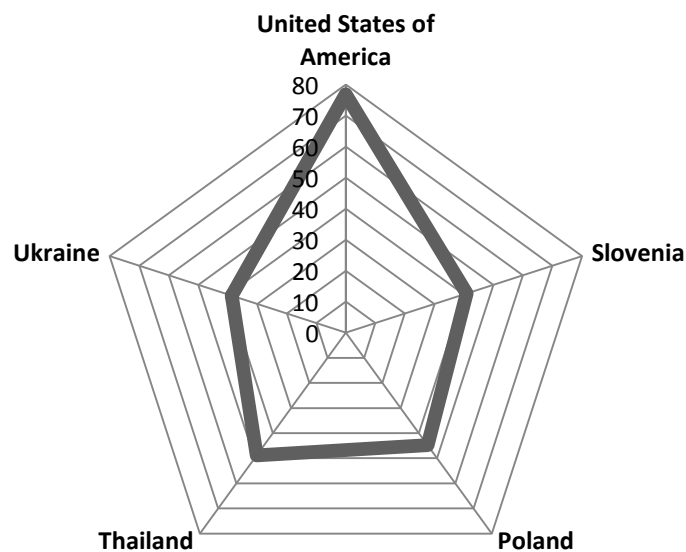


Figure 4. Scores for individual countries as regards Market sophistication pillar.
Source: authors' own study based on data from the Global Innovation Index 2012.

Business sophistication.

This factor defines the level of business sophistication to assess how conducive firms are to innovation activity, and includes 3 sub-pillars¹⁸:

- knowledge workers,
- innovation linkages,
- knowledge absorption.

Business sophistication exerted the most considerable influence upon the level of innovation in USA (9th position in the ranking), especially as regards knowledge workers in USA. Innovation linkages, collaboration among universities and industry in particular, have positive influence upon the level.

In Poland, this factor had unfavourable influence upon the level of innovation. This is a consequence of a low number of innovation linkages. Thailand stands out from among the evaluated countries with its score in knowledge absorption which is the highest among the countries. Figure 5 presents detailed information pertaining to scoring in this area.

¹⁸ *Ibid.*, pp.44.

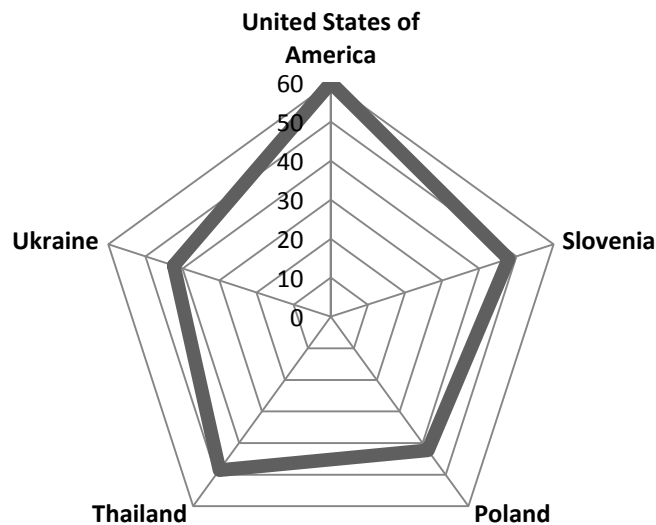


Figure 5. Scores for individual countries concerning Business sophistication pillar.
Source: authors' own study based on data from the Global Innovation Index 2012.

Knowledge&technology outputs.

In a knowledge-based economy, where knowledge is the basis for competitiveness, numerous countries rely upon knowledge to gain a competitive edge. Innovation capacity has become a key factor in shaping economic processes, individual, economic and social development. This conditioning covers all variables traditionally considered as fruits of inventions and/or innovations. This pillar includes 3 sub-pillars¹⁹:

- a. knowledge creation,
- b. knowledge impact,
- c. knowledge diffusion.

As regards the pillar, USA, which occupies 11th position in the ranking, was evaluated the highest. Poland (51st position) and Thailand (50th position) were evaluated the lowest. Evaluations are presented in Figure 6.

¹⁹ *Ibid.*, pp.44.

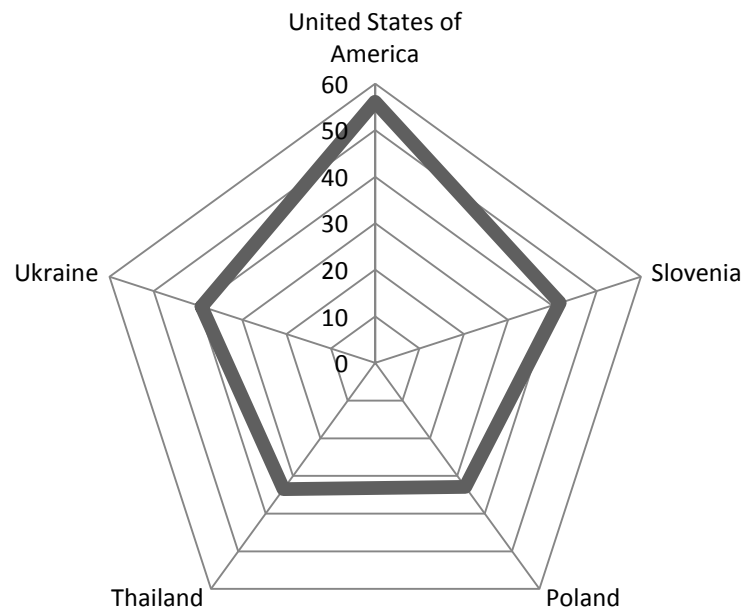


Figure 6. Scores for individual countries concerning Knowledge & technology outputs pillar.

Source: authors' own study based on data from the Global Innovation Index 2012.

The factor exerts considerable influence upon the Ukraine's innovation. Results obtained in knowledge creation contribute to this fact in particular (21st position in the ranking). The first position in the ranking deserves closer attention as regards domestic res utility model ap/BN PPP\$ GDP.

Creative outputs.

The influence of creativity upon the level of innovation is undervalued. However, in recent years and in connection with the economic slowdown, it has proven to be fundamental for economic development. According to D. Hübner, creativity may be perceived as the main source of innovation i.e. translating creative ideas into products and services. In this respect, creativity is present where innovations lead to economic results²⁰.

The GII has always put emphasis on measuring creativity as part of its Innovation Outputs pillars. This pillar includes 3 sub-pillars²¹:

- creative intangibles,
- creative goods & services,
- online creativity.

The factor influenced the level of innovation is Slovenia the most. On the other hand, Thailand was influenced unfavourably, which is reflected in Figure 7.

²⁰ Creativity and innovation, Driving competencies in the Regions, Panorama inforegio, European Union, Regional Policy 2009, Spring 2009, pp.29.

²¹ The Global Innovation Index, op.cit., pp.44.

It is noteworthy that in case of Slovenia, Madrid resident trademark reg/bn PPP\$ GDP is the best among all 141 evaluated countries.

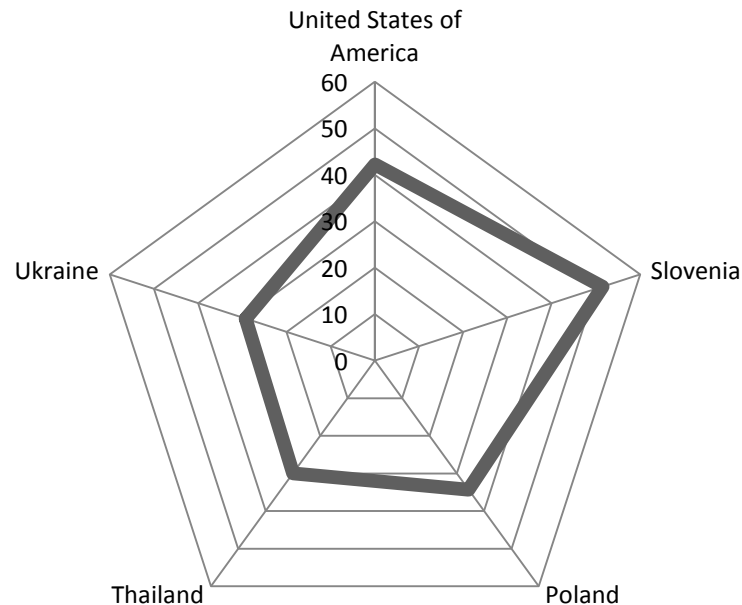


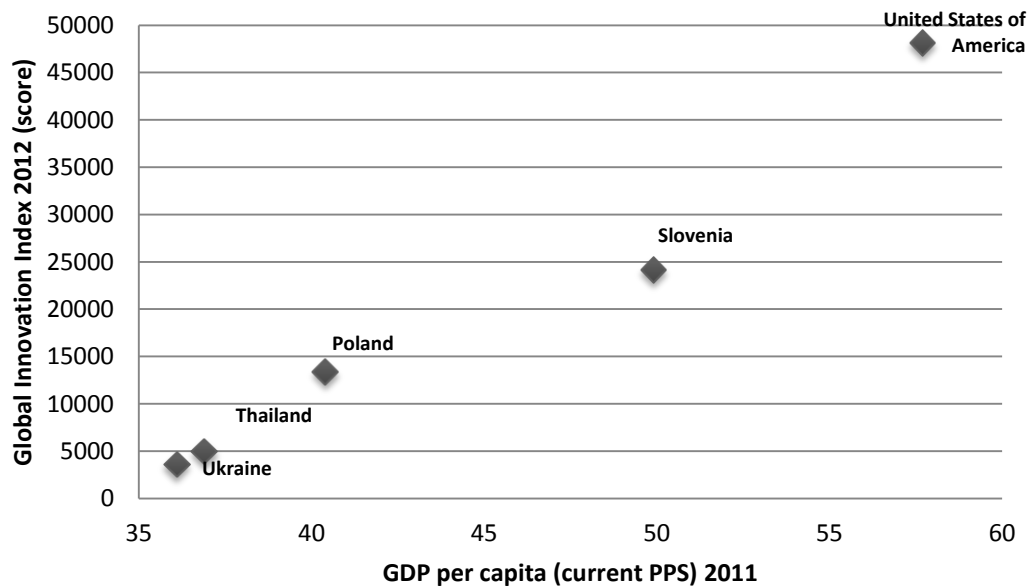
Figure 7. Scores for individual countries as regards Creative outputs pillar.
Source: authors' own study based on data from the Global Innovation Index 2012.

The analysis of level of innovation's influence upon economic development

For years, the increase of economic growth has been measured in Gross Domestic Product per capita (GDP per capita). This is one of the most frequently used benchmarks for measuring economic growth. The increase in GDP does not necessarily translate into the improvement of material situation of the society because GDP may not be streamed into the increase of consumption but rather to boosting production investments e.g. purchase of new technologies, establishment of new businesses, etc. GDP does not constitute the best yardstick when analysing standards of living as it does not reflect qualitative changes. Moreover, it does not provide full information on living standards and wealth.

In order to conduct international comparisons GDP per capita (GDP per capita= GDP/population of a country) was expressed in USD.

For the selected countries, the analysis of the level of innovation's influence (expressed by Global Innovation Index 2012) upon the economic growth (expressed in GDP per capita) was carried out. The relationship was presented in Figure 8. The analysis indicates the existence of a relationship between the two, which seems to corroborate the hypothesis presented in the paper.



Graph 2. Ranking position vs. GDP per capital

Source: authors' own study based on data from the Global Innovation Index 2012.

The analysis of level of innovation's influence upon economic development was carried out for the selected countries. The level of innovation for individual countries was taken from Global Innovation Index 2012. The level of economic development is presented by means of GDP per capita (current PPS) 2011. Data was taken from World Bank Income Group Classification (April 2012).

The analysis of the collected data indicates that countries with higher score in Global Innovation Index 2012 exhibit a higher level of regional development, which seems to justify the thesis put forward in the paper.

SUMMARY

One ought to remember that when discussing innovate on of an economy, the general state of technical development of a country is a function of three main actors (science, industry, government). The level of innovation depends largely on their involvement and results of their activities.

Summing up there are three culture model – the European one containing Poland, Slovenia and Ukraine, Asian – Thailand and American – USA. They are closely connected with innovation preferences and building the competitive advantage. Cultural values limit the innovative approach in the European model through two dimensions: high power distance and resistance to change expressed by high uncertainty avoidance.

There are also internal differences between researches counties- Slovenia very much in favor is based on collective approach, which helps to stimulate proactive projects.

Asian model represented by Thailand supports innovation in terms of long term orientation and patient, system even life- time approach to innovation.. It allows to receive systemic results.



The basic support for innovation in American model seems to be high individualism and low uncertainty avoidance. It stimulates activity of employees and openness to change.

Cultural values review shows that organizational culture of every country influence the specific innovation model applied in particular region. It is very important to identify it in order to focus on the supporting ones and reducing the barriers.

In order to boost the economic development, increasing the level of innovation seems crucial. The increase is only possible when conditionings exerting influence on it are clearly defined. The analysis indicates that the level of innovation is influenced both by economic and social conditionings presented in the paper. The analysis indicated that countries with higher scores in Global Innovation Index 2012 exhibit a higher level of economic development.

It is noteworthy that innovation rankings constitute a yardstick and a benchmarking tool for innovation performance across countries. These tools enable observation of activities undertaken by individual countries, adoption of worked-out solutions and introduction of changes in innovation policies.

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