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E-mail: gazddek@uni-miskolc.hu
University of Miskolc
Faculty of Economics

DEDICATION

The beginning of development of close cooperation between economic faculties NTU «KhPI» and University of Miskolc concerns to 1997 when at meeting of foreign delegations - participants of the Kharkov stage of the International Conference “microCAD” conferences it was accepted basic the decision on an establishment of creative communications between economic faculties of the specified universities. In 1998 deans of economic faculties NTU «KhPI» prof. PERERVA P.G. and University of Miskolc prof. Istvan SZINTAY have signed the appropriate working program of cooperation which maintenance was authorized by Rectors of high schools prof. TOVAZHNYANSKY Leonid and Rector prof. BESENYEI Lajos which operates and now within the framework of the big contract about cooperation of the given universities as a whole.

The maintenance of the given working program included such essentially important items for both faculties, as realization of joint scientific researches, training of teachers, and preparation of joint scientific and methodical works. The special place in the working program belongs to questions of increase of efficiency of educational process, improvement of quality of theoretical and practical preparation of the future experts in the field of economy and management.

For past years on our faculties Faculty of Economics, University of Miskolc and Faculty of Economics NTU «KhPI» employees prof. Pererva P.G., prof. Romanovskij A.G., prof. Jakovlev A.I., senior lecturer Reshetnjak E.I., assistant professor Kobelev V.N., during two months the scientific researches on scientific and information base University of Miskolc post-graduate students Piskljarova Irina, Kosenko Alexandra, Nesterova Victoria, student-diplom Pashkovsky Oleg carried out. The qualified consultations on subjects of scientific researches were submitted by scientists – economists from University of Miskolc the Rector prof. Besenyei Lajos, the dean prof. István Szintay, assistants to deans prof. László Tóth, associated professors Balázs Heidrich, Csaba Deák, Iván Fekete, Tibor Pal, Sándor Bozsik, Gyula Fulop, assistant professors Miklós Csiszárík, Tomas Csordás,. The special role in development and strengthening of creative communications between faculties belongs to assistant professor Miklós Csiszárík, which has undertaken all coordinating communications and is the contact person in the current communications of scientists and heads of faculties.

For last years on the basis of an industrial practice Faculty of Economics have passed organizational practice a lot of students of economic faculty NTU «KhPI». Among them Grisik Natalya, Yakymenko Tetyana, Porunkova Yevgeniya, Gavris Nikolay, Lavrenko Elena, Lazurenko Valeriya, Panas Anton,

Gutsan Alexandr, Mukhar Oksana, Chorna Oksana etc. Visiting of the Hungarian enterprises, Faculty of Economics, acquaintance with scientific and educational base University of Miskolc, his information funds and opportunities considerably have allowed our students to improve the knowledge in the field of management and economy, only perfectly well to end the fourth and fifth curriculums in NTU «KhPI».

Scientific communications of faculties have found the bright display in preparation and publications of scientific articles in the appropriate scientific editions of universities. For last years scientists - economists NTU «KhPI» and University of Miskolc have published in editions accordingly University of Miskolc NTU «KhPI» 19 scientific articles, have made 17 scientific reports at the International conferences. Consultations of economists from University of Miskolc successfully have helped to protect master's theses only in 2003 to teachers - economists NTU «KhPI» to Paul Brinju, Elena Kudojar, Victoria Matrosovoj, Galina Semenchenko and Diana Rajko. After successful protection of degree work Oleg Pashkovsky has acted in very prestigious educational institution in Ukraine - Kievo-Mogiljanskoj academy where now studies subjects magisterial programs on economy.

The special place in realization of creative communications of our faculties belongs joint to realization of the research project OTKA on studying a condition market and productions at the Ukrainian enterprises. Project heads are prof. Istvan Szintay, prof. Pererva P.G., prof. Gavris A.N.

The given research program is intended for observation of changes in systems and methods of corporate leadership in the beginning of 2000th years, the special attention is given the general and private changes caused global and becoming of the Hungarian and Ukrainian regions. The program enables to observe and register straight lines and indirect effects of two complementary tendencies and to develop their forecasts which may become a real basis for a substantiation of regional strategy. The international character of research allows to expand prospect of the analysis and also to create base for comparison. Due to this, will appear an opportunity to lead the expanded analysis of tendencies and an estimation of interrelations to receive clearer and versatile picture.

At drawing up of the questionnaire being base of research, was solved to capture five basic areas:

- Allocation of factors influencing a management efficiency the company;
- Change of organizational culture, calls of the intercultural environment;
- The mechanism transfer the technologies, new forms transfer knowledge, a role of the international organizations in system regional transfer;

- Models and methods of realization of changes and reorganization of the companies;
- Economic - social system and concrete ways of an embodiment of development of the virtual companies.

Twelve sections of a questionnaire are created on the basis of these five areas. Proceeding from above-stated conclusions may be made at three various levels:

- Ordering of the international results in frameworks of models of interrelations and generalization of results of the analysis of relative effects;
- Formation of specific national estimated model and generalization of its results;
- Estimation general and partial conclusions.

In realization of scientific researches within the framework of the given project has taken part over 150 students of economic faculty and faculty of business and finance, and also post-graduate students and teachers. Detailed research of all directions of work about 140 Ukrainian enterprises of all patterns of ownership was carried out. Similar researches were carried out by the Hungarian students and teachers at the Hungarian enterprises. The received results allow to develop the certain recommendations for improvement of work of the Ukrainian industry in view of experience and achievements of the Hungarian industrial enterprises.

We realize that our creative communications have just begun to develop actively though we already and have the certain results. Our faculties plan realization of a lot of the new actions allowing essentially to strengthen and expand achieved results for the future. Among them - preparation joint textbooks and monographs, preparation and protection of dissertational works by the Hungarian post-graduate students at Faculty of Economics NTU «KhPI» and the Ukrainian post-graduate students in University of Miskolc, realization of joint scientific conference on problems of economy and management, realization of joint methodical seminars on perfection of study and increase of efficiency of formation, realization of some coordinating actions for adaptation of educational system University of Miskolc both Kharkov to conditions and the requirements, fixed in the joint declaration participants Bolonskoj of Conference.

The good relationship between the two faculties has been and still is continuing during the term of Dean Dr. György KOCZISZKY. Our teachers mutually took part in MicroCad conferences and in 2007 the Ukrainian colleagues were welcomed among our guests at the Jubilee Conference of the Faculty as well. Last year two colleagues – before getting PhD degree- were in Harkov for a one-month-study trip to extend their Russian language knowledge. To the results of cooperation belongs the workbook published in Russian titled “The economic evaluation of innovative potential” which was written by the

common work of the colleagues of the Faculty of Economics, University of Harkov and the Kremenchuk Mykhaylo Ostrogradsky State Polytechnic University.

This volume of the Business Studies is – to publish the studies of the colleagues of the universities of Harkov and Miskolc – dedicated to the tight and lucrative professional relationship between the two faculties.

Prof. Dr. György Kocziszky
Dean

INVESTMENT PROBLEMS AND PROSPECTS OF CHEMICAL INDUSTRY UKRAINE

Bala Vladimir,

associate Professor of Economic Faculty Kremenchug polytechnical university (Ukraine, Kremenchug); *Kosenko Aleksandra*, Ph.D, associate Professor of Economic Faculty National technical University " Kharkov polytechnical institute" (Ukraine, Kharkov); *Schimpf Karin*, Ph D, Faculty of Economics and Management, Otto-von-Guericke University of Magdeburg (Germany)

1. ABSTRACT

In the article in detail the modern state of chemical industry of Ukraine is analysed and its separate industries. On the basis of it an author grounds perspective directions of investment of investments. In detail the prospects of investment development of both industry are analysed on the whole and its financial and raw material providing, and also innovative development of products which it makes.

A necessity of forming of effective strategy of investment development on regional and of a particular branch levels in the Ukrainian economy today is obvious. From the substantial decline of volumes of production investments, which happened for the last 15 years, processes, related to the physical wear of production funds, were intensified, to the constituents on estimations 60-70%. Prevention of the «avalanche-type» leaving of funds, exceeding the input of new, requires the considerable increase of innovative-investment activity, as to one of main pre-conditions of passing to steady economic development.

In order that to give the processes of accumulation and investing an impulse to development, active actions are required from the side of the state. Above all things it touches development of investment strategy as basis of public investment policy, providing adjusting of reproduction processes. However in the conditions when a federal investment policy yet only finds legislative and organizational forms, basic weight of organization of investment process in the real sector is on a regional level.

Forming of investment strategy of region or industry is a difficult creative process which is based on prognostication of separate terms of realization of investment activity and state of affairs of investment market, both on the whole and in the cut of his separate segments. This strategy is always formed within the framework of general strategy of economic development, conforms to it on aims, stages, terms of realization.

At forming of a particular branch or regional investment strategy, in opinion of authors, it is necessary to come from the followings tasks:

- grounds of kinds and volumes of investment resources (including foreign) from positions of their optimum distributing between different economic of a particular branch or regional complexes;
- choice of effective forms of bringing in of investment resources;
- implementations of calculations as evaluated by economic efficiency of the attracted investments in different investment projects;
- analysis and estimation of types of risks and their account in investment strategy of industry or region.

Production and enterprise strategy of enterprise allows to expose market segments and forecast the real consumer demand taking into account technical and technological, regional and of a particular branch factors, and also to take into account commodity, price and sale surprises. State support of economic and financial potential and control after activity of subjects of market infrastructure functions increase in this aspect.

On the basis of conception of strengthening of pertaining to national economy approach and efficiency of activity of enterprises, firms and corporations the analysis of the programs of development of country examined in governmental, scientific institutes is important on the nearest years and prospect 2015 to, and also generalization of experience of separate industries and regions. Working off the methods of adjusting of market mechanisms of management supposes base basis of transition from the arcwise-hierarchical structures of management of production to the organizationally-informative interactive systems of self-regulation of enterprises by development, realization of modern business plans, based on the marketing analysis of production and market.

Development of enterprise is related to expansion of the fund financing, forming of sources collective investing objects of production sphere. It is thus important to mark that in our time is underestimated functioning of taken away (ration) funds of private investors. Expansion of forms of participation of the state in development of ration funds consists in defense of rights for investors, including criminal and civil-judicial codes.

All of production which is presented on Ukraine it is possible to divide into industrial and agrarian. the managers of industrial enterprises and organizations are engaged in organization of industrial production, agrarian are managers of agrarian production. An industrial production, in same queue, is divided into extractive and processing industry.

Every industry of industry has the finished good. For mining industry the finished good is ore, coal. For metallurgical industry are steel, cast-iron, alloys. For an engineer - machine, to make up, vehicles, devices, adaptations and awaiting-parts to them.

Chemical industry, industry of heavy industry, to which the products of mineral fertilizers, plastics and chemical compos, artificial and synthetic fiber belong and to Text., organic and inorganic chemicals, herbicides, chemicals for

backspin of products of food retail industry, foto- and movie film and reagents for packing, artificial rubber, facilities for washing and дезінфектантів, отрутохімікатів of military-oriented, and also some other compounds of the special setting. Chemical industry occupies considerable enough part in the structure of national economy: 20 % (sectors are selected), from what 3% is on целюлозно-паперову, 10% is a production of coke and products of нафтопереробки, 7% – chemical and petrochemical industry.

The diversified chemistry and neurochemistry is rice is developed in Ukraine. 2. The largest subsections of the adopted industry are productions of basic chemistry (49% all of commodity products of industry), лакофарбова (6%), industry of plastic wares, glass-fiber casting (5 %), is bus (10 %), гума-азбестова (7 %), petrochemical – 20 %., other types of chemical production (3%).

Positive description of activity of chemical industry of Ukraine is circumstance that from 1999 to 2006 volumes were considerably increased production of goods, at what with every year production volumes grew table 1. This fact testifies that on world markets demand on the products of chemical industry with every year grows.

Such growth is explained that the wares of chemical industry find application in all without the exception of areas of national economy and in the way of life, exactly it stipulates plenty enough of prospects of its development, but parallel existence of certain problems of this industry stipulates with it.

Table 1
Production of chemical industry volumes are in 1999-2006 years

Year	Volume of output, thousands of tons	Index of industrial production, %% to the previous year
1999	13657,817	-
2000	14859,705	108,8
2001	16434,834	110,6
2002	17503,098	106,5
2003	20443,619	116,8
2004	23387,500	114,4
2005	25679,475	109,8
2006	26501,218	103,2

Especially noticeable are rates growths in 2006 year, which is minimum for the last eight years. Thus from 1999 year – 13657,817 thousands of tons production volumes were constantly increased and attained 26501,218 thousands of τ in 2006 year. At the same time, with growth of production volumes, the rate of production begins with 2003 years diminishes. Prospects and problems of development for evidentness it is expedient to consider as tablas. 2.

Table 2

Problems and prospects of development of Chemical industry of Ukraine

Problems	Prospects
<p>1. The export capacities of production of potassium fertilizers are not enough utilized.</p> <p>2. Due to the own production of necessity of market of medications satisfied only on 20%.</p> <p>3. The general crisis of economy entailed falling of production of goods of chemical industry.</p> <p>4. Considerable power dependence of enterprises, at a price advance on a power medium.</p> <p>5. In the last years the oversea states examine Ukraine, as a supplier of raw material and ready-to-cook foods of chemical industry. Nazhal' ready the level of quality of the prepared products dissatisfies the last.</p>	<p>1. Ukraine has a powerful source of raw materials for development of chemical industry.</p> <p>2. Khimizaciya of national economy of Ukraine is instrumental in the wide use of mineral fertilizers, what demand and supply on the last with every year grows due to.</p> <p>3. Considerable foreign capital investments in pharmaceutical industry, in basic chemistry, plastic wares and glass-fibre casting.</p> <p>4. Large enough power of chemical enterprises, which attracts foreign investors.</p> <p>5. During the leadthrough of insignificant modernization of production of providing of going into the world markets of sale on subsection of basic chemistry.</p> <p>6. High level of development of scientifically research labours.</p>

The different types of energy are utilized in chemical industry: electric, thermal, mechanical, light, artificial cold. Power mediums is an electric current, pair, hot water, fuel, water, air, rare gases, a frappe.

Chemical industry it is enough power-hungry, almost 70% prepared unit costs make exactly charges on gas. In the last few years the relationships of Ukraine with the "fuel partners" were some worsened. This fact entailed a price advance on the basic fuel of chemical industry — gas. The increase of prices on this type of fuel entailed growth of prepared unit of the Ukrainian chemical enterprises cost, that in same queue decreased demand on this type of products, both on Ukraine, and abroad. This fact forces to stop enterprises partly or fully on set time which also is not positive for an enterprise, in fact almost all of chemical processes pass at certain condition, attaining which is possible on the special equipment: reactors, refrigeration units, stoves, oxygen filters, but other

Complication of technological processes is a that feature of equipment does not allow to stop or pick up a thread the production of goods in times of

short: for a warming-up a reactor in which a catalytic reaction passes for the receipt of technical carbon it is necessary 72 hours, here for the last 48 o'clock of gas expense make so much, how many he is needed at the process of production of goods. It is Therefore advantageous not to stop a production an enterprise, working on composition which causes the problem of its storage.

Almost all of the Ukrainian enterprises of chemical industry was built in the days of Soviet Union, or on their basis after his disintegration, and necessarily on each of the last large storage facilities were built. Not because of this fact, presently on some enterprises of chemical industry of these apartments does not seize catastrophically.

It follows to remind circumstance that modern enterprises in the whole world try to pass technological process on quickly, that avoiding warehousing of both raw material and prepared products. It allows to decrease expenses on storage facilities, that results in diminishing a prepared unit and price cost on a commodity. Thus in the world market of sale of products hardness enough to compete the Ukrainian enterprises of chemical industry with foreign competitors.

Therefore the basic problem of domestic enterprises of chemical industry is providing of them by a cheap fuel, for possibility of exit from the crisis being and fixing of the positions both in the domestic and on world markets of sale.

Conducting the analysis of the state of industry of chemical industry of Ukraine, it is possible to draw a conclusion, that exactly presently for its subsequent development investments are needed.

Investments are in a production:

1. Modernization of technological streams is with introduction of computer control the system, which will increase efficiency of process of production, will decrease the amount of shortage, and also will free people from the process of production.
2. Use of the new system of filtration: substituting of tryapchanykh and fibred filtration sleeves is by the system of filtration with microprocessor blowing, that will increase the amount of catching of technical carbon in a filter, and also will provide the greater cleaning of departure gas from a technical carbon.
3. Substituting of reactors by new water-cooled, that will give considerable effectiveness of costs and time at футеровці reactor, will increase his hot-resistance which will allow less than to utilize gas at the process of combustion of raw material, and also will open possibilities for emitting of technical carbon of new brands.
4. Using for to the футеровці reactor of new type of футеровки—оксиду zirconium which will provide possibility of increase of working temperature a reactor, and together with it will increase the percent of output of technical carbon at the that level of charges of raw material.

5. Use of new heaters of air. The Danni heaters are made only two companies in the world: "Edminston" and "Al'kistron". These heaters allow an enterprise to increase their working temperature from 500 to 800 °C, and also to save on raw material or increase the output of technical carbon at the that level of charges of raw material.
6. Options of enriching of air oxygen. They help to cut down expenses gas for incineration of raw material in a reactor which results in his economy.
7. Options of heating of air, raw material and gas, which help to shorten their charges.

Investments are in a commodity: increase of amount of brands of technical carbon due to an issue highly - and low dispersible technical carbon.

Investments are in marketing: building of workshop for a production at run, it will reduce charges on their delivery (presently at run buy in Turechini, or in Russia) which in same queue will cut prime cost technical carbon and will increase competitiveness products on the domestic and world markets of sale.

Investments are in organization of activity: introduction of the system of ecological standard is in activity of enterprise which will allow an enterprise considerably to shorten contamination of environment and as a result to set a favourable tax for contamination.

Thus considering perspective directions of investments in the production of technical carbon it is possible to say in Ukraine, that the type of production of chemical industry is given it is enough perspective.

On perspective of development of production of chemical industry specifies circumstance that with every year the level of investing of this industry is increased, as from the side of domestic so foreign investors (tables 3). This growth is appropriate, in fact investors are better to inlay enterprises in modernization, than in building new. And large power of domestic enterprises and domain auxiliary buildings: pipelines, shifting terminals, large storage facilities, do them twice attractive, especially for foreign investors.

Table 3

A level of investing of the fixed assets is in Ukraine, chemical industry and subindustry of basic chemistry in 1996-2006 years

Year	Investments are in the fixed assets in million UA		
	National economy of Ukraine	Chemical industry	Production of products of basic chemistry
1996	12557	769,7	403,3
1997	12401	773,8	407,8
1998	13958	1046,9	555,9
1999	17552	1562,1	784,2
2000	23629	1684,7	843,6
2001	32573	1824,1	824,5
2002	37178	2115,4	1011,2
2003	51011	2764,8	1255,2
2004	75714	3990,1	1738,1
2005	93096	5194,8	2286,7
2006	125254	8191,6	4071,2

We consider that plenty of investment possibilities specifies on perspective of type of production of one of subindustries of chemical industry - basic chemistry. And stability of activity in the production of technical carbon does this type of activity investment-attractive. A question remains only in that which from directions of investing will be more effective and advantageous, as for an enterprise so for an investor.

On the basis of the analysis conducted in the article it is possible to select the followings strategic directions realization of regional investment strategy in chemical industry of Ukraine:

- providing is high-quality new level of the extended reproduction of capital assets, change of his structure with the purpose of diversification of economy of industry;
- neutralization of inevitable unfavorable social consequences of the measures realized in a region (for example, inevitable mass discharges in connection with closing or reconstruction of ineffective enterprises, especially power-hungry);
- increase of availability of investment resources for investors;
- increase of transparency of business and decline of level of corruption, perfection of normative base of investment activity, toughening of criminal responsibility for a corruption.

Providing the profitable functioning of chemical enterprise is possible by forming of the production program, to the proper state of affairs of market and

inwardly brandname possibilities. At forming of strategy of development of chemical enterprise in the conditions of diversification of production there is a necessity of determination of structure of investing of the production program, supposing the issue of different (often неоднородных) types of products with unequal on volumes and terms financial results.

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**DETERMINATION OF DIRECTIONS OF INVESTING
IN PRODUCTION OF TECHNICAL CARBON BLACK
TAKING INTO ACCOUNT PROSPECTS OF
DEVELOPMENT OF EVENTUAL USER**

Bala Vladimir Vladimirovich

is graduate student KSPU, economist of OSP "KCBP".

1. WAY OF DOING THE PROBLEM

In the last few years on Ukraine of most intensification the processes of investing of capital were subjected. It is explained that exactly investments help one to develop, and other is do an income, and, consequently, in the increase of investment streams interested and first and second.

Possibility to develop successfully and here not inlay a mean in an enterprise exhausted itself. A market was overwhelmed with enterprises, which sell identical products (works, services), and, consequently, a competition grew among the producers of products, which lately pass to the direct contacts with eventual buyers. They reduce its eventual cost this and increase competition position of product that in investigation results in the increase of competitiveness of all of enterprise.

Another not unimportant factor of development of investment relations is an increase of volumes of the foreign investing of domestic companies.

The special place in the economies of Ukraine occupies chemical industry, one of types of which is a production of black carbon. The last is widely used in many industries of technique. More than 90% of all producible black carbon consumes rubber and, foremost, bus industry (used as component part of rubber mixture). In large scales this product is utilized in the production of black varnishes and enamels and black printing inks for a polygraphs. Except for it a black carbon is used also as component part for the receipt of different wares from plastics, for making of copying paper and paints for a copying technique.

The wide spectrum of application of black carbon does him a very perspective commodity, in development of which it is necessary to invest facilities.

Thus, we consider that possibility of bringing in of investors in chemical industry of Ukraine very actual question, which requires a deep analysis.

2. ANALYSIS OF THE LAST RESEARCHES AND PUBLICATIONS

Lately a lot of research workers is engaged in the study of question of investments.

Shulga A.V. was engaged in development of complex effective case investment processes frame in a region. A complex model is based on the design of processes of territorial-economic division of the state on the basis of method of cluster analysis and model of outwardly industry balance, with the purpose of determination and analysis of territories with a different investment attractiveness. [18]

Shevchuk O.B. examined the complex of questions, related to perfection of organization of investment activity in the field of telecommunications and ground of efficiency of investment projects taking into account a risk.[16,17]

Shvidanenko O.A. considered the risks of the foreign investing in the economy of Ukraine. Offered classification of all of spectrum of investment risks, the methods of quantitative estimation of risk degree, spheres of their application and algorithms of calculation, are grounded.[15]

Chumakova I.U. studied the problem of analysis and audit of the real investments, and also directions of improvement of the informative providing for his conducting. Developed the method of analysis of investment attractiveness designed and operating enterprises - objects of investing.[14]

The question of traditional methods of estimation of efficiency of investments was widely examined, and also methods which take into account a risk factor; complex estimation of investment attractiveness of enterprises from point of profitableness of project: Seniv B.G., Saina N.V., Kirillova L.I., Kuzkin E.U., Kreidich I.N., Lisenko N.D. [10, 9, 4, 6, 5, 7]

Zaslavskaiy E.A., Stepurin I.N., Skomorovich I.G., Sinigovez O.N., Puhalskiy V.V., Ermochkina E.V engaged in optimization of decisions in a management investment projects, examined here:

- System of classifications of investments, which helps in the choice of methods of optimization of management investment projects;
- Influence of rate of discounting on the rightness of conducting analysis of the real and money investments;
- Conducting of analysis the financial state of enterprise on the basis of change approaches to the calculation of indexes, which allows the managers of enterprise or investors to accept exact investment decisions in relation to bringing (investments) in investment resources. [3, 13, 12]

Also an important fact is that they defined that the stages of analysis and effective management investment processes coincided both for the real and money investments. But main they select the stage of forming of priority directions investment activity. [11, 8, 19]

Thus, research workers were examining the questions of estimation efficiency investments and its increase, management, organization of design investment projects, and also organization of investment activity on an enterprise, investments and investment projects.

But we consider that it is necessary also to take into account that factor, that for every type of activity and industry the special are characteristic, only for him, lines and principles of development, certain prospects, weak and strong sides of development. Unfortunately, scientists do not spare due attention the question of determination of perspective directions investments in chemical industry of Ukraine, namely in the production of black carbon.

Therefore it is necessary to consider and select priority directions of investments in the production of black carbon. We consider thus, that the main condition of effective investment of facilities in an enterprise will be the maximal satisfactions of eventual user of this type of commodity.

Purpose of the article. To conduct the analysis of possible investment directions in the production of black carbon taking into account the requirements of eventual user.

3. BASIC MATERIAL OF RESEARCHES

In the conditions of mushroom growth of technologies, introduction of computing engineering for automation of processes of production of black carbon, very actuality is a question about the necessity of further development of enterprise, and to that end and about the search of capital for an investment - investments.

The state of domestic industry is lately such, that phrase there would «be a money, and where to inlay them we will find» very actuality. But exactly this error and do most major concerns, which inlay facilities coming from their presence and size, but not meaningfulness and investment necessity for further development of enterprise.

There is very a lot of perspective directions for development of soot industry in Ukraine and in the world, but it is necessary to take into account circumstance that every factory on the production of black carbon is developed not identically, and on it, that some enterprises already utilize not alone year other enterprises examine as a prospect.

Black carbon industry on Ukraine is presented two plants: by the «Kremenchug carbon black plant» (OSP «KCBP») and «Stakhanovsk carbon black plant (OSP «SCBP»)). The main user of black carbon of these plants is bus industry. Thus quality of product does not yield to the world competitors; therefore it is come forward the markets of sale of soot not only Ukrainian or Russian, but also such countries as Poland, Holland, Hungary, Great Britain, USA, Canada, France, and Germany. OSP «KCBP» made in Ukraine supply to such known producers of rubber of tires as: Michelin and Goodyear.

Above all things, for the successful and advantageous investing of facilities in the production of black carbon it is necessary to analyse bus industry needs in what black carbon.

There is one not decided problem on this stage of development of tire industry - the so-called triangle of quality is a picture 1.

The problem of this triangle consists in that ideal rubber for a tire must answer to three to the indexes of quality:

1. Resistance an abrasion - that rubber for tires must be more protected from an abrasion at coverage dear.
2. Elasticity and resiliency - that rubber must be soft and to accept a necessary form.
3. Coupling with a wet asphalt - a car at driving through the moist areas of road must not lose coupling with by a road.

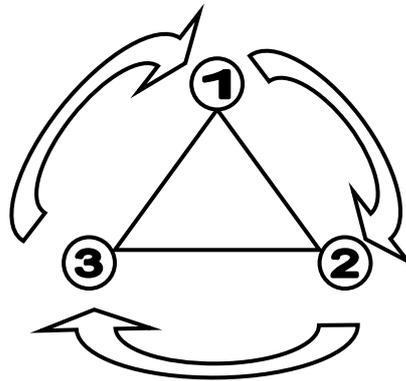


Figure 1
Triangle of quality of tire industry

Thus, having three these basic descriptions of «ideal tire», or as it is accepted to name it a «green tire» it is possible to create eternal, on measurements today's rubber for tires. A problem consists in that a not alone producer can not «convert a triangle into line», that to unite three qualities in one rubber - when to turn out to obtain the improvement of one quality two other go down downward, as into second place.

Obtaining «transformation of triangle» is possible only by the selection of certain brand of black carbon or combination a few easily soiled. Tested even with the use of simultaneous black carbon and white soot, but a result was identical - a triangle remains a triangle.

Thus, an investment must send in development of researches on achievement of black carbon of such qualities, which would fully satisfy an eventual customer.

The leading producers of black carbon are engaged in presently the

decision of this problem. Deciding this task a producer will be able maximally to increase efficiency of the activity, and expenses on developments of this brand of black carbon will be covered a cost for shortest terms, because this commodity will be in very large demand for the producers of tires all over the world.

Passing from global directions of development to more modern progress of soot industry trends it is necessary to mark circumstance that lately demand especially grew on the low active brands of black carbon. It 7,8 is easily soiled, 9 row. Presently on Ukraine only OSP «SCBP» produces the brands of technical carbon of 7th and 8th row, in very a few. Influencing of technology of his receipt and comparatively small percent of output of him is here traced from raw material.

His demand is conditioned development of bus industry and hard competition on the markets of its sale. Before a black carbon targeted at a defensive complex, rocket production, and space aviation, but the last years he began to be widely used and in civil industry. Adding him to rubber, the producers of tires were able to obtain the improvement of quality on such indexes of quality as longevity and elasticity.

In the nearest 5 years the specialists of leading producers of tires in the world forecast the increase of demand on information of brand of black carbon on 17% from a present level.

Thus, by the nearest prospect for soot industry, both in Ukraine and abroad there is development of production of black carbon 7, 8 and 9 rows.

Analyzing the personal touches of this investment project it is possible to select followings:

- More high demand on information of brand of black carbon;
- Possibility of output with this commodity to the world market;
- The level of satisfaction of users of technical carbon will be promoted by rating position of enterprise at the market of sale, and also his competition positions;
- Technologically more simple chain of production, but with more difficult process of production (on what the closed type of reactor influences for the receipt of technical carbon, and on it by the very difficult terms of control of process of decomposition of carbohydrate of hydrogen raw material).

Coming from the conducted research of possible and existent directions of investing in the production of technical carbon it is possible to draw a conclusion taking into account the prospects of development of eventual user, that main direction of investment policy of OSP «KCBP» must be development of productions and mastering of issue low active black carbon 7,8, and 9th rows.

4. CONCLUSIONS

Thus, conducting the analysis of possible and perspective directions of investing in the production of black carbon taking into account the prospects of development of bus industry it is possible to define perspective directions investment activity, both enterprises and investor.

Utilizing the analysis of prospects of development of eventual user in any industry and activity of enterprise will help right to define necessary direction investment activity with the account of not only possibility of enterprise but also necessity of conducting of investments, prospects of this investment project and his meaningfulness as for an enterprise so for industry and industry on the whole.

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THE EU-ENLARGEMENT AND THE IMPLICATIONS FOR LOCATION DECISIONS OF INTERNATIONAL ENTERPRISES

Olexandr Gavrys¹, Petro Gavrys²

Professor¹, Master Student²

*National Technical University "KhPI"¹, European University Viadrina
(Germany)²*

1. INTRODUCTION

The two consecutive EU eastern enlargements in 2004 and 2007 have had a major impact both upon political and economic situation in Europe. It not only made it possible for new member states and its population to enjoy every advantage of being part of the united Europe like freedom of movement for people, capital, goods and services, but also gave a raise to investment boom and active outsourcing of processes and services in the new EU member states. Western European companies are now actively engaging in global economic processes. To date, over 40 per cent of them have already started moving their operations abroad. For them, off shoring and offshore outsourcing are getting among the most widespread forms of entering the new markets. Yet, off shoring and off shore outsourcing are often being heavily criticized as the factors that cause unemployment and real wage cuts in developed countries. Other authors believe that the states can also benefit from off shoring provided that efficient measures on reemployment measures for laid off western European workers are taken (Farrell, Diana, 2004, p.8).

This paper is aimed at analyzing the consequences of the both recent EU-enlargements. Section 2 deals with the main general factors that influence location decisions of international firms. Section 3 considers the role of globalization and its effect on enterprise location. The issues of off shoring and off shore outsourcing in Eastern Europe are also addressed in this section. Section 4 copes with the relative competitive advantages of Eastern European countries as potential outsourcing location comparing to some other rapidly-developing countries like India or China. An attempt is made to assess the risks and benefits of investing and relocating production to Eastern Europe. In conclusion, the outlooks and the role of Europe in future with regard to global competition and increasing popularity of off shoring and offshore outsourcing are examined.

2. THEORETICAL BASIS OF DECISION-MAKING ON ENTERPRISE LOCATION

In the last decades were developed a number of theoretical approaches explaining reasons why engage in trans-border business activities. Proposed by Hymer market power theory represents a firm's international activities not as an attempt to efficiently invest available resources, but rather as a way to protect itself from competitor on home markets and an opportunity to take advantages of monopolistic access to new markets, specifically cheaper procurement and labor as well as untapped sales growth potential (Hymer, Stephen H., 1976).

Another theory commonly referred as product cycle concept proceeds from the assumption that every product appears in one of the four main stages of life cycle: development, growth, maturity and decline. According to this theory, only production of goods on the maturity stage that are seen as not environmentally friendly or obsolete in a land of origin is usually moved abroad (Vernon, Raymond, 1966). Of course, logical outcome of this theory would be the supposition that potential locations for foreign direct investments are primarily low-income developing countries. This conclusion has, however, never been empirically proved. In fact, a vast majority of all foreign direct investments occurs between developed countries.

According to the internalization theory, firms seek to streamline their processes by reducing transaction costs by means of efficient intra-firm trade. Transaction costs can be defined as costs incurred in making an economic exchange. These are, for instance, costs of mediation, costs of negotiations, exchange risks, copyright infringements and so forth. Internalization should help firms reduce efficiency decrease of imperfect markets as well as avoid limited rationality or opportunistic behavior by partners (Rugman, Alan, 1980).

Finally, in the late 1970ies Dunning has proposed the so-called "eclectic paradigm" that represented compilation and development of different existing theories on enterprise location. It determines the extent and the forms of international activities. It also defines three major groups of factors that affect location choices by firms. These are: ownership advantages; location or country-specific advantages; internalization advantages (Dunning, John H., 1988).

Ownership advantages are generally firm-specific competitive advantages. They can be either production-based or marketing-based. These are, for instance: economies of scale, product diversification, organizational expertise, access to resources and markets, marketing economies, availability of capital etc.

Location advantages refer mainly to some country-specific immovable resources, networks or institutional structures that influence potential benefit of investing in this country. Among such factors are: input costs like wages or

prices of natural resources, labor productivity, transport costs, market size, purchase power of buyers and so on. Apart from that, tariffs barriers, taxes, country-specific risk or government incentives significantly influence the attraction of a country as a potential enterprise location.

Internalization advantages can be achieved by elimination of transaction costs of using imperfect markets. Transaction costs can be incurred, for instance, by middlemen, exchange-rate risks, bargaining, intellectual property rights infringements, etc. This part of the eclectic paradigm is primarily an interpretation of internalization theory.

This paradigm has also aroused lots of critics. It is often blamed for excessive generalization and the lack of empirical evidence to confirm the theory. As another important deficiency some economists name an artificial breakdown into ownership, location and internalization advantages. Thus, Itaki suggests that ownership advantages are after all nothing else but an outgrowth of internalization advantages. In his view, all the factors that determine location choice of firms are too interdependent as to divide into separate groups. Yet, despite to some extent justified critics, the theories in question may prove useful not only in explaining why firms engage in international activities, but also help understand how companies act while choosing location for future investments.

3. GLOBALIZATION AS A FRAMEWORK OF INTERNATIONAL COMPETITION

Innovations in the IT, communications and transportation technologies have enabled faster and more efficient trade and cooperation between distant countries, thus creating a basis for globalization of the world's economy. However, the true driver for globalization are enormous differences in terms of risks and benefits in various geographical locations that bring with them considerable cost savings potential as well as sustainable competitive advantages for firms engaged in international activities.

The most important and obvious reason for corporations to move abroad and outsource intensively overseas are extreme labor cost discrepancies between developed countries like the USA and rapidly-developing countries like China and India. For instance, in the USA firms must usually pay as much as 20 to 25 dollars per hour for unqualified work force in manufacturing sector against less than 1\$ per hour in China.

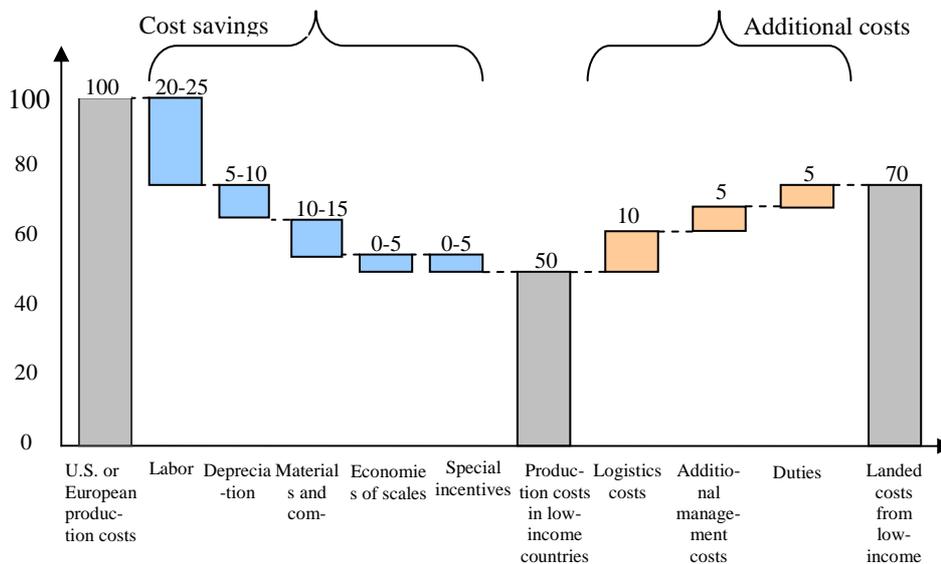
The increasing global competition and great savings potential in low-income countries create much pressure on companies to move their operations abroad. Companies face significant difficulties when changing their business models and establishing operations in low-income countries. Changing pattern of global competition is expected to affect major shifts in strategic positions of key global players. Those companies who will not be able to take advantage of offshoring and outsourcing opportunities will gradually be driven out of the

market by growing competition. Speed is now becoming the decisive factor determining the outcome of the race for domination in future. Those able to reorganize processes on the global scale will be able to secure competitive advantages for the years ahead. Firms that first enter new markets will be able to establish reliable partnerships with best suppliers and make full use of the local human capital thus increasing productivity and fueling a long-term sustainable growth.

4. COMPETITIVE ADVANTAGES OF OFF SHORING AND OFF SHORE OUTSOURCING

The most significant groups of advantages that derive from rapid globalization are: cost advantages; market access advantages; capabilities advantages.

Cost advantages that companies may achieve in low-income countries remain a main driver of global outsourcing processes. They comprise five major components: cheap labor, low capital costs, additional economies of scales, government incentives and lower domestic sourcing costs. The primary component is very low labor costs in developing countries. Another component is low capital costs that help save large amount of money on the balance sheet. They consist of lower factor cost and higher proportion of hand labor. Besides, to make more use of cheap labor some processes can be redesigned as to use less capital and more labor. Through cooperation with low cost domestic suppliers companies achieve extra cost savings and potential for future revenue growth. Moreover, in counties like China many companies build large export-oriented production facilities that allow them to take advantage of even greater economies of scales than in their home countries. Finally, in many low-income countries foreign investors enjoy dives government incentives like tax exemptions, simplified legal procedures, low import duties, subsidies and so on (Bhattacharya, Arindam, 2004, p.16-20). More detailed representation of cost saving potential of offshoring is on the figure 1.



Source: Boston Consulting Group case experience (Waddell, Kevin, 2005, p.3).

Figure 1
Costs calculation for typical industrial goods sourced from low-income countries

Market access advantages offer opportunities to benefit from strong economic growth on the new market as well secure attractive supply channels. They will not only help maintain existing cost advantages, but also strengthen a company's long-term global competitive position. Firm's are not anxious not only to exploit cost saving potential in low-income countries, but also concentrate on not cost-based competitive advantages. Such capabilities advantages are availability of qualified and willing workforce, flexibility provided by foreign worker, high quality of job done etc. Capabilities advantages, along with market access advantages, are not yet a decisive factor in choosing future enterprise location. Still, their role is steadily increasing.

Off shoring has often been criticized by many experts as a vice that brings about high unemployment in the developed countries. According to statistics, nearly 160 000 jobs were lost throughout the EU due to off shoring and off shore outsourcing. However, off shoring may also well be a win-win game. For instance, a recent survey by McKinsey Global Institute has displayed that every dollar invested by American companies in off shore outsourcing the economy of the US economy would capture \$1,13. These earnings come first of all from cost savings through off shoring, repatriated profits, and increased exports to the counties where off shoring takes place as well as an economic output of reemployed American workers that were laid off as a result of off shoring. Analogical results for European companies are less optimistic. Conversely,

every dollar invested by German firms in off shoring would bring only \$0,80 for German economy. The discrepancy between the two countries can be explained by differences in labor legislation. Thus, due to too complicated hiring procedure workers the output from reemployment of laid off German worker would be 29 cent against 46 cent created by American worker for every invested dollar. As plausible solution suggests itself labor market deregulation. Simplified recruiting regulations along with measures to increase labor mobility could turn off shoring into the game, in which both sides would benefit.

5. RISKS AND OPPORTUNITIES OF GLOBALIZATION FOR EASTERN EUROPE

American and European companies are facing increasing challenges of global competition, especially from Asians, and, thus, are forced to rethink their whole economic policy and search for new sources of competitive advantages. In order to optimize the cost structure and achieve a sustainable growth many of them actively engage in off shoring and off shore outsourcing. At the same time, most firms follow the trend and invest in far Asian countries as China and India. Doing so, they overlook attractive investing opportunities much nearer, namely, in the Eastern Europe. For the most industries, the landed costs of manufacturing in Eastern Europe are nearly the same or they vary only insignificantly. Consequently, factors other than costs are of importance for companies in making a final decision from where to outsource. In a number of aspects, Eastern European countries may be an even more efficient location for investment than Asian rapidly-developing countries. Thus, they provide low labor costs; though higher than in Asian peer countries, still many times lower than Western European countries or the USA. Furthermore, these higher costs are oftentimes outweighed by other factors like language knowledge, availability and quality of local talents, geographical proximity to Western Europe and favourable business environment as well as volume and relative affluence of the local markets. Altogether, the region is a large attractive and dynamic market with good investment climate, a large pool of cheap and highly qualified work force that present significant growth potential for the future.

6. CONCLUSION

The trend of product, service and process sourcing is going to continue in the next years. In spite of the harsh competition from rapidly-developing Asian economics like China, India or Thailand, the role of Eastern Europe not only be preserved, but also the countries of the region including the new EU member states as well Russia, Ukraine and Turkey will be able to develop their potential as outsourcing locations. In the first place, that will be caused by increasing demand for off shoring throughout the world. Further, EU-enlargement has

simplified the process both from legal and taxation standpoint. Finally, Eastern Europe has a number of location advantages like low cost qualified work force, geographical proximity and similar working hours as well as large dynamically growing market. Both the new EU member states and the countries that not yet joined the European Union are expected to take an active part in global sourcing processes.

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MONITORING OF RESULTS OF COMMERCIAL USE OF INNOVATIONS

Gladenko Ivan,

associate Professor

of Economic Faculty National technical University " Kharkov polytechnical institute " (Ukraine, Kharkov)

1. ABSTRACT

In clause the system of the parameters is submitted, allowing to carry out monitoring activity of the enterprise in the field of commercial use of innovations and a transfer of technologies. The basic purposes of system of parameters are: positioning of the researched enterprise by criterion of innovative activity; revealing of directions of increase of efficiency of activity; indication of innovative process. The system of parameters includes both qualitative, and a quantitative estimation of results of realization of innovative process. The offered system of parameters allows to take into account features both the separate enterprise, and branch. Features of realization of monitoring of results of commercial use of innovations are marked.

Monitoring of results of realization of innovative processes at the industrial enterprises is carried out on the basis of studying consecutive stages of innovative process. Objectively any process of manufacture of innovative production will consist of lines of stages strictly following one after another to which it is possible to attribute:

- Basic research;
- Research work;
- Developmental work;
- Skilled manufacture of innovative production;
- Research of the market of innovative production;
- Creation of manufacture of innovative production;
- A batch production of innovative production.

The result of each stage assumes an estimation or the intellectual property, or a cost estimation of business.

The approach submitted above not always provides necessary definition of the purposes both at management of the enterprises as a whole, and at acceptance of investment decisions, in particular. The problem consists that many enterprises do not allocate results of separate stages and fail an economic estimation of again created cost. Besides such approach to monitoring does not allow the investor (state or private) to make representation about productivity of the supported enterprise of scientific and technical sphere.

The analysis has shown, that the best results for the investment purposes are given with monitoring as system of parameters. Key purpose of offered system consists in the following:

- Positioning the given enterprise by criterion “innovative activity” that can form a basis of forecasting of the future innovative behaviour of the enterprise as an estimation of efficiency of use of innovative potential for concrete date or for the certain period;
- Revealing directions of improvement of efficiency of the future innovative actions on the basis of comparison with scheduled or comparable specifications, as an estimation of corresponding accommodation of human resources and financial investments;
- Indications of the innovative progress, allowing to draw a conclusion on productivity and continuity of investments and revealing potential problems which are necessary for investigating.

The analysis has allowed to present the known in scientific and technical and economic literature of parameters system of parameters as the following indicators:

- The period of innovative changes;
- A level of a survival of innovative products;
- A share of an effective survival of innovative products;
- A share of sales of innovative products in total amount of sales;
- Structure of process of development of new products;
- Structure of an innovative portfolio;
- Efficiency of investments into scientific and design works;
- Structure of expenses for scientific and design works;
- The innovative income on one worker;
- Profitability of innovations.

The period of innovative changes. As the period of innovative changes we shall understand an interval of time during which there are essential changes of a product, services, technologies, the organizations, managements or a segment of the market. For scientific and technical sphere the given period of changes is considered concerning a product or technology more often. Definition of the period of innovative changes is actual, first of all, for revealing speed of changes in the given sphere. The period of innovative changes (*Tinnov*) usually gets out equal from 1 year till 3-5 years depending on branch features and strategy of the enterprise. For comparison of the enterprises of various branches application of average on branch of the parameters describing speed of leaving of traditional products or services from the market is quite allowable. For the analysis inside branch it is more expedient to compare with speed of becoming of new products (that allows to avoid the mistakes connected to restrictions of the market when the product inherently is innovative at an estimation, but his penetration on the market is limited to developed attitudes in branch. The longer

time there is a branch, the above a degree of occurrence of restrictive mechanisms).

Besides a number of the subsequent parameters pays off for the period of innovative changes, and the traditional calendar period for their calculation is inapplicable.

Level of a survival of innovative products. The level of a survival shows, how the market concerns to introduced innovations of the given enterprise or the given branch and shows, how a lot of found selling (becoming a source of the profit) new products is claimed by the market during the period of innovative changes. This indicator shows speed of leaving of new products of the given enterprise from the market. Taking into account, that historical experience for the majority of the small and average enterprises of scientific and technical sphere is insufficiently great, this parameter is useful to investors and at a branch level. The level of survival V_g can be designed as follows:

$$(1) \quad V_g = \left(\sum_{i=1}^T P_i^m \right) \left(\sum_{i=1}^T P_i^c \right)^{-1}$$

Where: P_i^m - quantity of the products realized in the market which are taking place during the period of innovative changes in the market by the present moment of time; P_i^c - the general number of new products which have brought commercial benefit; T - duration of the period of time of innovative changes.

Share of an effective survival of innovative products. The share of an effective survival shows a degree of satisfaction of investors in the received income. She shows, in what degree new products which have found selling in the market, correspond to investment forecasts of the income or the profit that allows to estimate two situations:

- Accuracy of forecasting of the income or the profit from new products which is important at business - planning;
- Structure of the profit or the income and a degree of influence of innovative sources on profit.

Besides indirectly given parameter estimates a level of management at the enterprise, first of all, financial, showing ability of the enterprise not only to develop a new product, but also successfully to use it at the consumer. In conditions of insufficiency of investments in scientific and technical sphere value of this parameter at selection of innovative projects is great enough, that allows to make the certain rating of the functioning enterprises. The share of effective survival E_v can be designed as follows:

$$(2) \quad E_e = \left(\sum_{i=1}^T P_i^e \right) \left(\sum_{i=1}^T P_i^c \right)^{-1}$$

Where: P_i^e - quantity of the new products surpassing the initial forecast of the revenue or the profit till the present moment of time during the period of innovative changes; P_i^c - the general number of new products which have found the consumer in the market.

Share of sales of innovative products in total amount of sales. For the purposes of a finance administration it is necessary to investigate all structure of a sales volume; in this case we allocate an innovative component. For scientific and technical sphere the size of this parameter can reach 100 %. It is necessary to note, that for effective activity of the enterprise this parameter should not be less than 10-15 %, and for effective investment - should not exceed 30-35 %. The specified structure proves to be true successful functioning in the modern market of the multiplane enterprises when growth is provided, on the one hand, with an innovative component, but, on the other hand, the monoprofile enterprise has too high risk of the activity. The share of sales of innovative products I_p pays off as follows:

$$(3) \quad I_p = \left(\sum_{i=1}^T I_i^c \right) \left(\sum_{i=1}^T I_i \right)^{-1}$$

Where: I_i^c - the total annual income received from commercial use of new products till the present moment of time during the period of innovative changes;

I_i - the total general annual income.

Structure of process of development of new products. The parameter represents an instant picture of how process of development by new products is filled. It is based on the developed facts showing as it is necessary concepts really to make commercial use of a new product much. Such approach states an impartial estimation of quantity of developed products which is necessary for commercial use of the set number of products, and is logic continuation of a known rule "100:10:1." actually given parameter is a tribute of studying of innovative processes as sequences of stages and, in the greater degree, takes into account innovative potential of the enterprise, rather than innovative result. At the same time it is obvious, that various strategy of the enterprise in a different degree will depend on this parameter:

- The strategy focused on own development, practically always can be authentically appreciated by the given parameter, except for a situation with radical innovations;

- The strategy focused on copying of innovations, will be deformed at studying the given parameter.

The given parameter is estimated by set N :

$$(4) \quad N = \{n_1, n_2, \dots, n_k\},$$

Where: n_1, n_2, n_k - accordingly, quantity of new results on the end of the first (the second, k) stages of process of development of a new product on the end of year; K - quantity of the allocated stages of process of development of a new product.

It is necessary to mean, that the given parameter has subjective character as the quantity and the maintenance of stages in various researches can be various (for example, such stages as are given in the beginning of given clause, or, for example, the following list: idea, the concept, the prototype, market testing, introduction, commercial use).

Structure of an innovative portfolio. Studying of structure of an innovative portfolio allows to estimate a share and the income, falling each new product sold in the market, and forms a basis for development of investment strategy. The structure of an innovative portfolio can be submitted as quantitative, and as a cost estimation. For acceptance of investment decisions it is necessary to carry out grouping of products to the following attributes: new products in the country or the world, new products for the enterprise, continuation of existing lines, improvement of grocery lines, preservation of an existing product (on the basis of new materials or in the new market).

Efficiency of the investment into scientific and design works. Efficiency of investments into scientific and design works shows, what feedback from each rouble enclosed in researches and development of innovative products. First of all, this parameter is applicable for an estimation of sufficiency of investments into scientific both design works and necessary organizational changes as at insufficiency of financing the necessary level of feedback can be and not received. It also shows, that investments into scientific and design works can be transformed into new products which release will bring return of means as the total profit. Efficiency of investments into scientific and design works it is expedient to expect with use of the approach based on expenses:

$$(5) \quad E_i = \left(\sum_{i=1}^T IP_i^c \right) \left(\sum_{i=1}^T C_i^{in} \right)^{-1}$$

Where: IP_i^c - the net profit received from commercial use of new products till the present moment of time during the period of innovative changes;

C_i^{in} - expenses for the scientific and design works enclosed exclusively in new products till the present moment of time during the period of innovative changes.

Structure of expenses for scientific and design works. This parameter shows, how it is a lot of investments from a total sum of investments is spent for development of new products. Depending on innovative strategy and importance of new products for the purposes of growth of all enterprise this parameter should be planned at a sufficient level and correspond to structure of an innovative portfolio, establishing a necessary parity between various directions of investments SCK . It pays off as:

$$(6) \quad SCK = \left(\sum_{i=1}^T C_i^{in} \right) \left(\sum_{i=1}^T C_i^{rd} \right)^{-1}$$

Where: C_i^{in} - the expenses enclosed in new products till the present moment of time during the period of innovative changes; C_r^{di} - the general expenses for scientific and design works till the present moment of time during the period of innovative changes.

The innovative income on one worker. The innovative income on one worker is original criterion of labour productivity of people engaged in innovations. This parameter ID also gives representation about efficiency of accommodation of additional resources:

$$(7) \quad ID = \left(\sum_{i=1}^T D_i^{in} \right) \left(\sum_{i=1}^T P_i^{rd} \right)^{-1}$$

Where: D_i^{in} - the total annual income received from commercial use of new products till the present moment of time during the period of innovative changes;

P_i^{rd} - the general number of workers (it is equivalent to a full busy time), completely borrowed with innovative activity.

Profitability of innovations. This known expression determining profitability for the period as the attitude of total net profit to all innovative investments ROI_{in} :

$$(8) \quad ROI_{in} = \left(\sum_{i=1}^T DP_i^{in} \right) \left(\sum_{i=1}^T C_i^{in} + C_i^A + C_i^B + IR_i^D + IC_i^E \right)^{-1}$$

Where: DP_i^{in} - the net profit received from new products till the present moment of time during the period of innovative changes; C_i^A - the constant costs connected to innovative activity, suffered till the present moment of time during the period of innovative changes; C_i^B - expenses for the researches suffered till the present moment of time during the period of innovative changes; C_i^C - expenses for the design works suffered till the present moment of time during the period of innovative changes; IR_i^D - the industrial investments suffered till the present moment of time during the period of innovative changes; IC_i^E - the commercial costs suffered till the present moment of time during the period of innovative changes.

The given system of parameters allows to carry out effective monitoring of innovative processes at the enterprise and will allow investors to make more argued decisions. The special attention should be turned on the account of features of each enterprise as the submitted system of parameters enables detailed studying of innovative process.

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METHODOLOGICAL ASPECTS OF STUDY OF THE STATE OF AFFAIRS OF COMMODITY MARKET

Kobeleva Tatjana

associate Professor of Economic Faculty National technical University
" Kharkov polytechnical institute " (Ukraine, Kharkov)

1. ABSTRACT

The methodological questions of the state of affairs of commodity market are considered in the article. Conformities to the law of its forming and basic factors which influence on its size are certain. The varieties of the state of affairs of world market are investigational, the special attention is spared the questions of forming of the state of affairs of commodity markets. Conformities to the law of forming of the state of affairs are as an example considered on asynchronous electric motors.

2. INTRODUCTION

One of determinations of word the "state" of affairs is connection of different, folded on this interval of time of circumstances, phenomena and terms, creating a certain situation in some sphere of public life. First the concept of the state of affairs was utilized in Germanium in 17 by economist A.Vagnerom. By the most essential factors, influencing on the state of affairs, he named change in technologies of production, changes of amount of harvest in agriculture, changes in an economic policy and social structure of society.

The founder of conjuncture researches was become by U.Mitchell. His basic idea was become by the statistical study of the system of economic indicators, explaining the action of different factors and economic design of processes of changing the state of affairs. If to talk about the economic state of affairs, it is determined the relation of factors and terms and determined correlation of demand, suggestion and dynamics of prices. By factors, reflecting the state of affairs it is possible to name, for example, producing goods and commodity supplies. However main in the mechanism of forming of the market state of affairs is a price, because it provides co-operation of all of other factors and supports a dynamics. Determination concepts demand and supply can be given and in relation to a price. Demand *it* is an amount of this commodity, which can be purchased at certain price. Price it one of basic factors, influencing on demand and supplies, and, consequently, and on the state of affairs of market. The state of affairs of economy, as research object, is concrete correlation of process of public reproduction in set time, in different scopes, for example, sectorial. The economic state of affairs, accordion under act of conjuncture factors, is component part of economic science.

3. ANALYSIS OF EXISTENT POSITION

Conjuncture researches - one of methods of operative study of market which provides industries and enterprises state information market now exposes reasons of change of demand and supply, and also expected directions of market development in the nearest months. As already marked higher, basis of conjuncture researches was made by conception of U.Mitchela about the system of statistical study of economic indicators. This model included the followings blocks:

- barometer of profits (registration interest rates, price indexes, prices of equities);
- barometer of production (level of employment, receipt of orders, supplying with raw material, production volume);
- barometer of sale (wholesale and retail circulation);
- credit barometer (money circulation).

From data of this model the markets of different commodities, securities, currencies of were probed. Jointly with researches of the market state of affairs different theories (distributing, sale) which created a marketing theory afterwards were formed. Since 50th of research of the state of affairs of market in an occident переориентируются on maintenance of the strategic planning of development of large corporations. In our time these researches formed separate scientific direction – market «research» (Market research).

4. RESEARCH RESULTS

Basic achievements given research can be taken to the next parcels. In the beginning we will spare certain attention *factors, to influencing on the state of affairs* of market. The study of the state of affairs of commodity markets plugs in itself treatment, analysis and systematization of quantitative indexes and high-quality information, characterizing market development in this period of time. The choice of the system of indexes is determined the aims of concrete research, for example, analysis of market development, analysis of situation at the market for certain period of time, change of technical and economic descriptions of production. All of conjuncture factors, stimulant market development or retentive him, are classified on the followings groups:

- permanent;
- temporal;
- cyclic;
- not cyclic.

Government control of economy, scientific and technical progress, inflation, seasonality in a production and consumption of commodities, behaves to the constantly operating factors . Factors which affect the state of affairs periodically are named temporal. It, for example, natural calamities, social

conflicts, extraordinary situation. In development of markets certain repetition, recurrence, caused the seasonal change of demand and supply, life cycles of commodities (leading out of commodities to the market, growth, maturity, decline), changes, can appear in a reproduction structure, by the vibrations of investment activity, changing of economic policy. The factors of unicyclic character determine the specific of production and realization of concrete commodities. Affecting of different factors process of production and appeal of any commodity allows to expose connections between what be going on events and causing them reasons. Exactly affecting of different factors process of production and appeal of commodity is reflected in the change of the state of affairs of markets.

The basic objects of conjuncture researches, as the analysis conducted authors rosined, are determined coming from the tasks of research of the state of affairs of its levels and conjuncture indexes.

The task of conjuncture researches consists of determination of degree of influence of separate factors on forming of the state of affairs in certain moment of time. Deciding such task is possible, if to conduct research of the state of affairs taking into account the new phenomena, arising up in the field of production. In order that to present a situation, what be going on at the market, it is not enough to know price changes, exchange indexes, flow of inventories and oscillation of other indexes. Research of the market state of affairs requires knowledges of conformities to the law of development of economy, co-operations of markets in a reproduction process. Three levels of research of the state of affairs are selected:

- общехозяйственный - the state of world economy or economy of separate country, groups of countries, accordion under act of conjuncture factors, shows, includes the followings aspects: economic potential of economy and his elements: natural, production, labour, financial resources; scientifically-educational and infrastructural potential; институциональная structure of economy. Includes a brandname structure, scales of concentration, specializations of production and sale, organizational forms of government control of economy; system of regional markets and its structure, descriptions of the realized commodities, factors, influencing on forming of regional markets, level of economic development, allocation of profits between managing subjects and population, correlation of prices on competitive commodities, accumulation of commodity supplies; correlation of demand and supply taking into account the degree of the use of financial, financial, labor resources; commercial and financial terms of realization of commodities;

- sectorial (shows position in industry of national or world economy);

- separate commodity (shows position of separate commodity in the scale of world, national or regional market).

One of main concepts of research of the state of affairs is a study of changes in a dynamics and correlation of prices. It is necessary to set reasons, causing a

change in a level or pattern of prices. The analysis of changes technology of production is similarly needed, terms of consumption of commodities, account of changes in wholesale and retail trade. Researches of these changes help better to understand directions of motion of prices. Prices and costs of production of commodities the row of different factors affects. The estimation of this influence, I.e. and account of what be going on changes is in the standard of prices, is made by the analysis of the proper indexes, determining dynamics and standard of prices of different commodities. Since a picture is got of direction of development of economy on the whole, it is necessary to pass to research of development of those industries economies which are main users at this market. As a result of researches of changes the estimation of development of producing goods is made in a volume and pattern of consumption, the state of affairs of market of which is studied. The analysis of development of consumption and production allows to draw a conclusion about a change in a between ness by demand and supply, to define the possible capacity of market and future standard of prices. The methods of research of the state of affairs of any commodity market, economy or industry are developed on the basis of indexes, which can help in a direction finding development of production, trade and finances in the future. At these researches the estimation of correlation of suggestion and demand is conducted for the necessary span of time, study of price-waves, sale of commodities and services, commodity supplies, estimation of stability of market development. At the study of the state of affairs of markets it is necessary to examine indexes, which can give a quantitative estimation different changes which take a place in the economy of the probed industry. The state of the state of affairs is quantitative it can be appraised by the followings groups of indexes:

a) a volume and dynamics of production is measured on the whole, size of investments, level of employment, wage rates, information about orders. It is the so-called indexes of sphere of production;

b) solvent demand, sizes of realization of commodities in credit, information about retail and wholesale trade;

c) the transferred behaves to the indexes of into regional trade;

d) volumes, dynamics, geographical distributing of between regional onnections, volumes of import and export, volumes of грузоперевозок. This group of indexes behaves to the group of межрегиональных and external economic connections;

e) credit and monetary appeal. The prices of equities and other securities, interest rates, sizes of bank deposits, rates of exchange, behave to this group of estimation.

Basic description of the state of affairs of market is a degree of balanced of demand and supply. It shows up in the conduct of prices, speed of turnover of commodities. This estimation allows determining the type of the state of affairs. The types of the state of affairs are divided into a favorable or unfavorable type.

At the favorable state of affairs the balanced of demand and supply is arrived at, prices hold out at stable level. At the unfavorable state of affairs demand falls behind from suggestion that results in growth of commodity supplies, deceleration of turnover of commodities, observed difficulty in the sale of commodities. Success of conjuncture researches depends on speed of receipt of objective and complete information about reasons, character and size of vibrations of accordance of demand and supply on different markets. Main requirements to information are an operation ability and representatively. Information consists of three stages.

1. Determination of circle of indexes.
2. Development of chart of passing to information is in time and space.
3. Volume and form of presentation of information.

At the study of the state of affairs of market the systematic looking is conducted after all of economic indicators the change of which shows changes in correlation of demand and supply, and also allows to analyze reasons of these changes. After processing of information an analytical document which is named conjuncture review is made.

By an author the state of affairs of the Ukrainian market of asynchronous electric motors was investigational. Asynchronous engines are the most widespread type of electric machines, consuming all of about 40% produced electric power presently. Their set power increases constantly. Asynchronous engines are widely used in the drives of metal-working, woodworking and other types of machine-tools, blacksmith's and press, weaving, sowings, грузоподъемных, earth-moving machines, ventilators, pumps, compressors, centrifuges, in elevators, in a hand electro-instrument, in appliances et cetera Practically there is not industry of technique and way of life, where asynchronous engines would not be utilized. The necessities of national economy are satisfied with mainly the engines of basic execution of single carouses of the general setting, I.e. the mechanisms, not producing the special requirements to starting descriptions, sliding, power indexes, applied for a drive, to noise etc. At the same time in single series foresee also electric and structural modifications of engines, modifications for the different terms of environment, intended for satisfaction of additional specific requirements of separate types of drives and their external environments. Modifications are created on the base of basic execution of carouses with the maximally possible use of knots and details of this execution. In some drives there are requirements which can not be satisfied the engines of single carouses. For such drives the specialized engines are created, for example electro-well sites, faucet-metallurgical and other Basic directions of perfection of asynchronous electric motors of the general setting. Low-voltage asynchronous electric motors of the general setting power 0,25...400 kW, standard asynchronous engines named in the whole world, make basis of power electromechanic, applied in all of areas of human activity. In the industrially developed countries a large value is given

their perfection. Presently a market, called to reflect interests of users, does not form any certain requirements to the standard asynchronous engines, except for a price. In this connection for the exposure of tendencies of their perfection it is necessary to come from the requirements of oversea market and from achievements of basic producers of standard asynchronous engines. The conducted researches rotined the presence of row of factors which mainly and form the state of affairs of commodity market of this type of wares. For example, leading firms-producers produce энергосберегающие standard asynchronous engines power 15-30 kW and more. In these engines of loss of electric power mionectic no less what on 10 % as compared to before producible engines.

5. CONCLUSION

So, what such the state of affairs of market and is it needed for what? The state of affairs is an aggregate of certain signs, combination of different circumstances which characterize the state of economy in a certain period. State of affairs of economy, is component part of economic science. As basic characteristic signs of the state of affairs are changeability, unevenness, contradiction, therefore to accept a correct, economic decision it is necessary to possess information about a situation at the market, and to conduct his study. The process of study plugs in itself such aspects, as research of processes of production and realization of products, activity of leading industrial and point-of-sale firms, financing and crediting, pricing, prospects of development of production and consumption. Can be drawn on the results of conjuncture researches for different aims, such as drafting of economic and technical prognoses, determination of prospect of direction of scientific researches, drafting's of business plans. Large possibilities of rapid and high-quality research of the state of affairs appear presently. For a high-quality analysis, prognosis the condition of rapid receipt, exchange and treatment of information is needed. Presently due to the new informative systems and computer technologies more exact and rapid receipt of all of necessary information becomes possible for research of the state of affairs that promotes quality of prognoses and acceptance economic of effective decisions.

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GROUND COMPONENT OF INNOVATIVE POLICY OF INDUSTRIAL ENTERPRISE

Maslak Olga

Professor of Economic Faculty of the Kremenchug state polytechnic University by M. Ostrogradsky (Ukraine, Kremenchug)

1. ABSTRACT

The detailed analysis of methodological essence and maintenance of economic policy of industrial enterprises is conducted. The presence of characteristic directions of innovative activity and constituents of its efficiency is grounded. In quality the basic constituents of innovative policy of industrial enterprise by an author certainly: technical, technological, skilled, food, market, organizational, informative, legal, investment. The detailed description is given each of constituents.

Innovative policy — difficult and a process motion of which is reflected many initial pre-conditions is never deprived a risk: technical, financial, economic and social. At the same time, the attempts of creation of clear policy, which can react on the rapid changes of situations, support difficult projects, begin in the entire developed countries, including, and with the high degree of technical and financial risk. The acceleration of eurointegration processes, creation of additionalss for expansion of participation of Ukraine in the international division of labour requires realization of models of socio-economic development of country and regions, adapted to the modern requirements of international association. A dominant progress of leading countries of the world trend with a power dependent economy (the USA, Canada, Japan, leading countries of ES et al) is a successive transition from industrial to the after industrial model of development [1,4,5]. Leading direction of such transition is an innovative way of development with gradual transformation of previous «industrial» instruments of government control and innovative policy, based on the requirements of industrial production and dependency upon it social relations, on unity of interests of supporters of technical development, CPLD imperious functions.

Depending on characteristic the object of research of features in economic relations it is possible to select such the most important constituents of innovative policy:

- *technical* – reproduces the presence of technical base of enterprise, region or country to develop and inculcate innovations;
- *technological* — creations new and improvements of existent methods of production of present commodities (services);

- *food* — creations new and improvements of existent commodities and services, oriented to demand;
- *skilled* is organization of preparation and providing of all of lanocs of economic activity by the shots of the proper qualification for realization of innovative activity;
- *market* is development of new methods of activity on internal and external markets, providing of advancement of innovative commodities and services to the existent and new markets of sale;
- *informative* is creation on all of levels (to national, regional, local) of informative networks with the purpose of the complete providing of necessities of innovative activity, organization of their addition and exploitations;
- *investment* is a ground of sourcings innovative measures and mechanism of receipt and returning of facilities;
- *legal* is the legislative providing of innovative activity in industry of organization, financing, use and legal safeguard of results of innovative activity;
- *organizational* is an improvement of organizational structures of management (state, regional, structures of business management and others like that) innovos.

All of constituents of innovative policy are in close intercommunication, each of them predetermines a presence other and complements it. It is impossible, must strong technical and skilled resources carry out effective innovative activity without the proper financing. In same queue even at surplus of financial resources effective work is impossible without the presence of intellectual capital or without the informative providing. Fully materially, intellectually and financially well-to-do innovative activity will not give the proper return, if it will not be closely related to market researches, with necessities and нуждами of future users. As well as in dear other sphere success of innovative activity fully depends віж of effective management, effective organization of works, thus, if this activity will have the proper legal providing.

The technical constituent of innovative activity determines possibilities of creation and introduction of innovations. Before its tasks belongs [1,5]:

- study of manufacturabilities and requirements to him and at the necessity of removal of found out disparities;
- development of directions of technical rearmament (update) of the fixed assets of enterprise;
- creation of mechanism of realization of measures, directed on perfection of the техніко-технологічного state of enterprise;
- analysis and evaluation of efficiency of technical policy which is carried out.

Food and technological constituents are two basic innovative directions of activity of dear enterprise, region or countries which chosen the innovative

way of development. In basis of these constituents is determination of priority directions of scientific researches, concentration of efforts on separate vitally necessary directions, development of technologies and products, directed on an energy-savings, diminishing of labour intensiveness, account of ecological factors and others like that. Absence of clear commodity technological constituent of innovative strategy of development of our country, and also maintainance in the programs of priority development of industries of the third and fourth technological modes predefined that Ukraine and today providing of base industries requires food and technological innovations, then when the world passes to deepening of development innovative of directed. A problem also consists in that, providing dynamic development of innovative industries, a country is forced parallel to inculcate innovations in base productions, and without clear strategy of innovative investment activity not to decide this problem.

Market constituent has for an object forming of tactic and strategy of conduct of subject of innovative activity at the proper market. Its realization allows to study the structure of commodity market and make a decision in relation to forms and methods of development of competition environment on him. This constituent includes for itself the followings elements:

- research of current and perspective necessities and *нужд* users and determination in them of segment which answers possibilities of concrete enterprise;
- forming of tactic and strategy of conduct of subject of innovative activity is at the market;
- development of commodity, price and sale policy of enterprise is on the separate segments of market;
- forming of of communication policy of enterprise and development of mechanism of its realization;
- development is to sale and *післяпродажного* brandname service, to oriented to the requirements in him users;
- leadthrough of the permanent monitoring of market changes and *корегування* in connection with them innovative policy on the whole.

The result of effective market constituent will be a decision of main task of innovative activity – providing of users modern commodities which answer them *нуждам* and to the necessities, that will find the proper review in forming of demand for these goods and will provide the commercial aims of enterprises-developers of innovative products.

A skilled constituent characterizes intellectual potential of subject of innovative activity. It aims enterprises at proper program development on preparation and retraining of specialists, the intellect of which answers direction of activity of enterprise, creation of the proper terms of their labour and way of life, providing of them the proper *етлінгс* and social terms. An intellect is a that source from which and progressive ideas are ladled on creation of new

technologies and products. For Ukraine this sore enough subject of realization of it innovative policy, so as limits of our country for the last 15 years were abandoned by considerable part of the most geared-up specialists on the different branches of science and technique, for which the proper terms were not neither for labour nor for life.

The investment constituent of innovative activity is most obvious and most necessary. It engulfs all of фінансово-економічні aspects of functioning enterprises which provide realization of innovative policy. An investment constituent must conduct the ground of sourcings all of works on creation and introduction of innovations, to provide the accumulation of the proper volumes of facilities, necessary for practical realization innovative programs and projects. The special value here has active voice of enterprise in the international and national programs and projects which are financed accordingly international funds and national budget.

Estimating financial potential of the state in relation to providing of development of economy and introduction of innovations in a production, it follows to establish: in Ukraine there is contradiction between possibilities and necessity of realization of innovations both at the level of separate enterprises and the states. Specific gravity of charges on fundamental researches and assistances of NTP in the lump sum of charges of the erected budget of Ukraine, as a rule, does not exceed 2%, and in the structure of GDP less than 1%. And it then, when in the developed countries of the world this index exceeds 2%, and by a strategic purpose, for example, of countries of ES there is leading to of this index to a 3% GDP in 2010 year.

An informative constituent has the special value in the innovative policy of enterprise, so as it provides a gradualness and sequence of scientific researches in the whole world. Vividly speaking, it is eyes and ears of innovative policy. Effective labour innovative the sector of dear enterprise possible only then, when he will be fully provided with necessary information about all of present scientific developments in the areas of certain product and their results; about possibilities of logistical support of both scientific and technical developments on creation of certain product and on his future production; about all of changes at the market in relation to necessities and нужд users, about the level of competition, about the tendencies of expansion of market possibilities and others like that These important tasks are provided free access of researchers to the global informative network, to national, regional and local informative networks, by the leadthrough of the certain operating under their filling by information, by development of mechanism on its effective use.

A legal constituent includes for itself the presence of legislative base after all of directions of innovative activity which is regulated and controlled the state. Above all things it behaves to the system of taxation of profits from a production and sale of innovative products in Ukraine and after its limits. A

legal safeguard and legal defense of objects of intellectual property, which unavoidable arise up in the process of innovative activity, has a very important value. In legal support it is urgently needed and operating of the state under financial stimulation of separate directions of innovative activity and its results.

The organizational constituent of innovative activity must provide the effective organizational structure of management innovative developments, close intercommunication between separate scientific and technical, production and commercial subsections of enterprises. By the important constituent of realization of organizational constituent the state, there is the use of mechanism of creation of economic clearzones. Taking into account the necessity of innovative direction of economy of Ukraine, these must be технопарки of intellectual type. In opinion of row of researchers [2] operating today in Ukraine the system of state administration is not instrumental in scientific development of the practically directed and necessary innovative decisions. Yes, the functions of management science are carried out by Department of education and science of Ukraine, scientific and scientifically applied researches conduct establishments of NAN of Ukraine and of a particular branch research, project institutes, ministries. All of it decentralizes building on sometimes operates as an administratively supervisory system and influences on corporate science. If to look at experience of the developed countries, majority from them is utilized "cluster" approach for determination of strategy of innovative development. Industrial clusters are production networks of interdependent firms, incorporated one of одною in a production chainlet. Sometimes they show by itself alliances with universities, research establishments, users. Effective поєднання of all of constituents of innovative policy must be instrumental in achievement of strategic purpose of innovative activity in Ukraine: providing of positive economic dynamics is due to drawing on a complex "investments-innovations", forming of internal innovative investment mechanisms of independent development of national economy.

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EUROPEAN VECTOR OF DEVELOPMENT OF UKRAINE IN THE CONDITIONS OF ECONOMY OF KNOWLEDGES

Pererva Petro¹, Schimpf Karin²

¹Professor, Dean of Economic Faculty National Technical University
"Kharkov polytechnic institute"

²Professor, Ph D, Faculty of Economics and Management, Otto-von-Guericke
University of Magdeburg (Germany)

1. ABSTRACT

Essence and basic constituents of new direction of development of country are economies of knowledges is considered in the article. His efficiency and expedience is well-proven. The prospects of growth of level of competitiveness of country and its products are grounded in the conditions of economy of knowledges.

In the last decades of the XX item global development, informative, technological, economic revolution substantially sharpened the terms of competition between countries and geared the degree of their riches and prosperity to possibility to create and utilize knowledge, ideas, innovations and new technologies. At the same time pre-conditions were created for appearance of new type of economic environment - economy which is based on knowledges.

If to the middle of the XX century differentiation of countries after the level of development did not depend so sharply on the level of the use of knowledges (new technologies, innovations, educational level and computer literacy of workings), today not only countries which develop but also transitional economies can remain on the side of a road of global processes without an account in the strategies of development of properties of the most successful and dynamic economies which are based on knowledges.

A question of international competitiveness and proceeding in positions of Ukraine as the hi-tech state is the question of survival in a medium-term and long-term prospect. Therefore Ministry of economy together with other ministries and departments was initiator development of strategy of passing to the economy of knowledges. In this connection important is a study and account of European experience of passing to the economy of knowledges in the context of acceptance of the Lisabonskoy program, which is basis of European strategy from forming of competitiveness of countries in the conditions of economy of knowledges and shows priorities development of European Union (ES) which is one of leaders of world economy and, consequently, his experience of increase of competitiveness, indisputably, is of interest.

For research of this question the methods of scientific abstraction are used, statistical high-quality and quantitative comparisons, factor and structural analyses, expert estimations.

Bases of economy of knowledges the known foreign economists of F.Khaek put beginning, Y.Shumpeter, F.Makhlup. Among the Russian scientists the richest in content labours in the probed sphere belong V.Inozemcevu, V.Makarovu, V.Danilovu, V.Polterovichu, G.Kosheviy, A.Kozirevu, V.Kostyuku, A.Kuznecovu. Among domestic research workers and practical workers very little supporters of necessity of realization of deep analytical researches of the phenomenon of economy of knowledges and exposure of its features and possibilities are for Ukraine. It follows to pay a regard to works of Yu.M.Bazhala, V.M.Geecya, L.A.Musinoy, V.P.Seminozhenko, the theoretical aspects of resource of knowledges are examined in which, character of transients is analysed, prospects are outlined for Ukraine and the role of public innovative policy is determined in forming of economy of knowledges.

Methodological generalizations in relation to ways and methods of practical realization of conception of economy of knowledges were realization in March in 2000 on the summit of European Advice in Lisaboni by determination of strategic aims of development of European Union to 2010 p.: to create in ES the most competitive economy which would develop dinamically, being based on knowledges, with the high level of employment and social partnership.

Priority directions of activity of European Union were become by three areas: scientific and technical, innovative and educational. In particular, to the already existent Scope program research and designer developments (NDDKR) added the new Scope program competitiveness and innovations (2007-2013), and also Program of computer-integrated actions in relation to continuous education. In development of this strategy cardinal measures are foreseen on strengthening of scientific and technical potential is an increase of charges on NDDKR from current 1,9% to a 3,0% GDP, and also expansion of European collaboration. On the Lisabonskomu summit conception of creation of European scientific and innovative space was also pulled out (expected, that growth of charges on NDDKR will give an additional annual increment GDP in size of 0,5% and will lead after 2010 to creation annually for 400 thousands of additional workplaces).

Every two years the World economic forum (VEF) conducts the analysis of accordance of countries of ES the criteria of Lisabonskoy strategy. At determination of positions of members of ES different factors are taken into account, in particular all of accessible information about the combined economic indicators, introductions of innovations, and also researches, state of industries, which provide development of market infrastructure, efficiency and integrating of the system of financial services, liberalization of market,

improvement of enterprise environment, social included and long-term development.

If to examine separate industries or separate countries of ES, but not Union on the whole, some of them obtained striking successes. It touches, foremost, north countries.

For to monitoring information in 2006 year first place was taken the by Denmark the economy of which appeared most competitive in accordance with лисабонських criteria. Right behind it two go other north countries are Finland and Sweden. This three of countries is included also in unchanging five of leaders of rating of global competitiveness of countries during the last six years.

North countries are given up the high rating of competitiveness call a withstand stereotype, that countries with high taxes and extraordinarily developed system of public welfare (that with the high social loading on a budget), country of the so-called social capitalism, can not be competitive. The north states are characterized open economies with striking combination of high standards of education, labour productivity, by ability to adapt oneself to the international competition, by an effective management and use of resources of, which is combined with the high level of social unity and high particle of governmental charges in the structure of GDP.

A few considerable achievements of Ireland look unexpected (from point of withstand in mass consciousness pictures of this country). In opinion of specialists, the special attention is deserved by experience of leadthrough in the country of policy in the area of education and employment. However if to compare Ireland to the by a north countries, it while can not boast the same successes in the area of industrial introduction of NDDKR, and it is one of factors of its lag on the general level of competitiveness.

In relation to the competition spheres of activity, for today Europe attained success in a few from them, namely: in providing of high level of education, creation of the proper terms for scientific researches, in cultivation of favourable environment for creation and innovations. At national level cardinal changes take a place in a інституційному cut:

- scientific policy and, partly, the industrial and regional is integrated in an innovative policy, an innovative policy is carried on a regional level;
 - the role of the state grows in creation of favourable innovative environment;
 - the new forms of collaboration and partnership of private business, state and academic circles appeared;
- the state stimulates lines and by not lines methods co-operation, aimed at commercialization of results of NDDKR and expansion of demand on the results of activity of state research centers (so-called «third stream», after support of NDDKR and educations);

- separate direction in a public innovative policy occupies activity from propaganda of problems of scientific and technical and innovative development among wide public;
- wide distribution is got by the new mechanisms of prognostication and making of priorities for forming of national strategy of development («Forsayt», different forms of long-term «vision» et cetera).

However, if to examine ES on the whole, it was not succeeded to obtain successes Union on the way of overcoming of lag from basic competitors - USA and Japan. A main task is reduction of break, not to mention about passing, remains unrealized. The habitant of the USA on the average remains in approximately on 40% richer than average habitant of ES. And intermediate estimations only underlined heterogeneity and variety of advantages, terms and possibilities between the members of Union which is the basic line of ES-27. Combining a competitiveness with social safety and solidarity succeeds far not all of members of European Union.

Exactly many experts consider destruction of social model reason of failures in the Lisabonskomu process. As Did'e Donfo, secretary of the state of Belgium said in foreign affairs, the «citizens of Europe consider that Union becomes part of problems rather, than by their decision - that is why confirmation is unemployment, social unscreenedness, worsening of environment, change of climate, deindustrialization and growth of cost of energy».

Except for that, one of basic tasks, which presently sharply stands before the governments of members of ES, is embodiment of strategy of competitiveness not only in concrete plan of actions, but also presentation of it as national idea, from which the separate not states, but countries, win in composition of European Union. Support of European Union in the last few years diminished considerably. Unfortunately, the most European political elites were not able in time to notice this threatening tendency and in any way did not prevent because the process of making a decision in Europe became too technological and not sensitive to the public problems and hopes. Therefore, presently very little Europeans consider European Union a necessary condition for the welfare, besides, not many from them know about aims existence of ES.

Although presently the European model of development and tests perceptible criticism in connection with the decline of indexes of development of economy in the countries of Europe, however, it proved that was able to combine the developed mechanisms of social defence with the increase of the labour productivity and high level of employment of population. Therefore the Lisabonskiy plan of actions, accepted European Union, is a correct way, although at first his realization needs growth of proportion economic of active and politically conscious Europeans, increase of investing of scientific and креативних researches, and also sparing of greater attention to the human

capital, in particular, through distribution of practice of studies during all of life and fight against the social unsettled state.

As marked in 2004 p of Dzh.Stigliz, a nobel laureate is from an economy: «The crossflow of knowledges, which so instrumental in to global development, will become in future decades, obviously, one of powerful factors of growth of «new economies». Ukraine, as well as most transitional economies, is still on a half-way in the transformation from a plan to the market. If innovative change of economy is basis of bases of eurointegration course of Ukraine, alteration of economy of knowledges is foundation of national innovative reforms on the present stage.

Impossibility to remain aside from processes, which take a place today's at the competitive global market which is based on the economy of knowledges, at included of Ukraine in a world economy, Ukrainian політикум realized. At development of «Strategy of development of Ukraine» official presentation of which will take a place in the 20th numbers of September, a government foresaw realization of model of high-quality transformation of existent industrial economy in the economy of knowledges. Today in Ukraine, as initiators of project assert, there are needments for such transformation: scientific potential, scientifically methodological and experimental basis, financial and financial resources.

The competitiveness of economy of our state in the conditions of approaching to the «economy of knowledges» will be determined quality of human capital, by investments in studies and retraining of shots, by quality of corporate management, інноваційністю business, by the dynamics of international exchange by knowledges.

However necessary it is for successful realization of the noted program of development of Ukraine, taking into account experience of European Union, at first, to enter new principles of management of development national strategy, what would foresee its priority for economic and public development of country and enhanceable responsibility of organs of state administration for its implementation, and, secondly, it is expedient to be determined at political level in relation to proclamation of idea of construction of society and economy of knowledges as national purpose of development of Ukraine in the first fourth XXI.

Measures are marked higher consolidations of political, state, regional, business and public circles of Ukraine will promote round realization of regional strategies of construction of society of knowledges as competitive edge on national and global markets.

Results, got at implementation of this work, can be applied in practical activity of organs of state administration of all of levels, and also by research workers and specialists, as a theoretical base for the ground of future prospects of forming of competitiveness of Ukraine in the conditions of passing to the economy of knowledges.

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THE ORETICAL AND METHODOLOGICAL ESSENCE OF PRODUCTION POTENTIAL

Poberezhnaja Natalia

associate Professor

of Economic Faculty National technical University " Kharkov polytechnical institute " (Ukraine, Kharkov);

1. ABSTRACT

The methodological going is developed near determination of essence and maintenance of economic category «production potential», his structure and maintenance. It is well-proven an author, that production potential is a complex of economic, organizational and social factors which determine maximum (maximal) ability of object (to industry, region or organization) independently to create, to make and realize the commodities created for itself. Suggestions of author deepen теоритечні bases of production process in part of forming of integral системи management of виобором and rationalization of optimum trajectories of production development of industrial enterprises.

A concept is “potential” already firmly enough entered in scientific terminology and successfully utilized scientists in the different areas of scitech. “Economic potential”, “spiritual potential”, “ethics potential”, “scientific and technical potential”, “skilled potential”, “innovative potential” and other, widely know scientific public of concept At the same time, concept probed in this work “production potential”, in spite of all of his evidence, importance and perspective of the use, did not yet find the proper reflection in the advanced studies of domestic and foreign researchers and is one of “white spots” in the category vehicle of production activity. As appears us, failing in researches of this economic category is investigation of row of difficulties of methodological and applied character.

Foremost it should be noted that methodology of determination of concept “production potential” must be based on clear terminology determination own concept “potential” as concept summarizing, on what absolutely justly specifies E.V.Lapin [9]. Therefore, as appears us, it is expedient at first to consider the evolution of going near determination of concept “potential”, and then to pass “production potential to the retrospective analysis of concept”.

In scientific literature of concept “potential” began to be actively utilized at the end of 70th beginning of 80th of XX age. A lot of publications the authors of which examined the different aspects of this concept appeared exactly in this period sufficiently [9, с.12-18]. So in the dictionary of foreign words under ред of O.S.Mel'nichuka the following, widely widespread at that time, interpretation

of term is resulted “potential” (potential from Latin *potentia* is “force”): “...possibility, forces, supplies, methods which can be utilized.” [16, c.541]. In “Dictionary of foreign words”, under editor F.N.Petrova interpretation over of this term as “power”, “force” is brought [17]. At the same time in the dictionary of “Entomologist of Russian” under editor N.M.Shanskogo specified on the origin of word “potential” as adopted in XIX age from French, where *potentiel* from Latin *potentialis* – derivant from *potens* - that “can”, “can be literally” [23]. In the “Modern encyclopaedic dictionary” under editor A.M.Prokhorova another determination of potential is given as “...size, that characterizes the wide class of the power fields in this point...” [23, c.143]. Such interpretation allows to conduct attributes of a number of concepts in physics, chemistry, mathematics. Accordingly distinguish potential magnetic – “...size, that characterizes the magnetic field” [2, c.271]; potential is electric is a “... size which characterizes power terms in the electrostatic field” [2, c.270]; potential is chemical is a “...термодинамічна function which characterizes consisting of some component of phase of this composition at certain external terms” [8, c.655]; potential – “...одна from descriptions of the vector field” [12]. In Large Soviet Encyclopaedia the following determination of concept is pointed “potential”: “It is facilities, supplies, sources which are present in a presence and can be mobilized. Resulted in an action, utilized for achievement of certain goal, realization of plan, decision of some task, possibility of individual, society, state in a certain area” [2, c.270]. “Potential” allows to apply such wide interpretation of semantic maintenance of concept him to the different branches of science and activity of man depending on that, about what force, facilities, supplies, sources speech goes. In particular, in works, devoted research of theory of potentials, the wide class of descriptions of potential is pointed: economic, folk economic, skilled, production, scientific and technical, informative, production, organizational, defensive, naturally resource but other [9, c.13-14].

On the basis of foregoing it is possible to do a next conclusion. In the most analysed works importance of study of problems of estimation of potential is marked and specified on existence of considerable differences in determination of concept “potential”, to his essence, will make and correlation with other categories [4, c.20-22]. At the same time greater part of researchers as selects the basic elements of this concept presence of resource constituent and potential possibility of its use.

Wide distribution in an analysable period of time got a concept “production potential” or “potential of enterprise”. Among the researchers of this economic category it follows to name V.N.Avdeenko, A.A.Zadoya, K.K.Kazhmuratova, O.O.Kolesnikova, E.V.Lapin, I.P.Otenko, V.P.Rudenko, V.K.Fal'cman, O.S.Fedonin, S.A.Kheymana, D.A.Chernikova, D.K.Shevchenko and some other scientists [1,4,7,9,13,18,19,20,21]. Will mark circumstance that in relation to making of conception of production potential most distribution resource

approach purchased. Two “resource” positions are more most strongly most strongly selected thus [9, c.14-15]. First – potential is the aggregate of resources without the account of their intercommunications and participation in the process of production. Yes, V.N.Avdeenko considers that potential is the collapsible description of resources generalized [1,c.214]. As a “amount and quality of resources, which has in the order and or other economic system” understands potential of enterprise of K.K.Kazhmuratov [7,c.12]. In opinion of D.A.Chernikova, potential of enterprise is characterized the “aggregate of resources without the account of the real intercommunications which are folded in the process of production” [20, c.89]. The feature of the second resource position consists in interpretation of potential as an aggregate of resources, able to make the certain amount of material welfares. For example, E.V.Lapin considers that potential “characterizes the resources of production, their quantitative and high-quality parameters which determine maximal possibilities on the production of material welfares a moment is given in each” [9, c.38]. Analogical position is occupied by V.K.Fal'cman, which examines potential as “aggregate of jointly functionings resources which own ability to make the certain volume of products” [18, c.6]. In opinion of D.K.Shevchenko, potential is the “aggregate of production resources, united in the process of production, owning by certain potential possibilities in the area of production of material welfares and services” [21, c.17].

The considered conceptions allow to draw a conclusion that potential of industrial production includes different resources. For example, V.P.Rudenko [15, c.47] and V.K.Fal'cman [18, c.3] attribute to them only capital production assets and powers. In opinion of I.P.Otenko, to the elements of potential it follows to take the resources of labour force, facilities and articles of labour and the supplies of minerals are attracted in a production [13, c.39]. Moreover, S.A.Kheyman [19] considers that potential of industrial production must include a production vehicle and level of technology, natural resources and materially raw material balance, existent system of communications, technique, organization and system of receipt, processing and moving of information.

At the same time with that, it follows to be useful with opinion D.I.Kokurina, which considers that to «...determinations potential through the aggregate of resources expedient as the initial stage of empiric generalization» [6, c.111]. In this connection, together with the resource going near determination of essence of potential of industrial production there are other approaches in literature. For example, V.P.Rudenko counts potential of production of production capacity an analogue and that is why suggests to determine him as annual, day's, sentinel or taken to other temporal unit volume of output of products is “maximally possible” [15,c.3].

One of the most substantial elements of the system of production process there is production potential, which is owned by the system which represents its capacity for implementation of the put tasks.

An analysis is conducted by us rotined that most researchers, interpret a concept «production potential» like a concept, namely as a size of resources which provide economic activity, beginning «economic potential» from the stage of research works and concluding the transmission of new good in the sphere of it the practical use. The resulted determination is built on logic of concept «potential», that to possibility, presence of force, supplies, facilities which can be utilized. In relation to the article of this research the said means that production potential presents the present resources of country or some organizationally economic pattern, which can be utilized for realization of production activity. At the same time, as appears us, resources are yet not potential in direct sense this word or, possibly, it is independent potential, for example, resource. Thus we do not even talk that the same resources can be utilized absolutely in different spheres or on different directions of the same sphere, possibly, even production. At the limited size of resources (and he is limited in any economic system) resources will mainly be utilized on investments which can be named tactical, as a return from them is possible in the nearest prospect. Strategic investments in this value are less attractive for being in a charge subjects, as a return from them presents a vagueness more high to the degree both on a size and on the terms of receipt. Obviously, that production activity directed on creation and use of new products it follows to attribute exactly to extraordinarily risky directions of the use of resources.

However, such approach allows to represent one of sides of production potential only – him resource providing which is not fully acceptable and does not represent the actual setting and essence of production potential.

Weak developed of concept “production potential” and negligible quantity of literature on this проблематиці hampers determination of disciplinary origin of this concept. At the same time, already in the first works [10,11,18 and other]which designated the conceptual scopes of research, the complex going is set near working of concept “production potential” which eliminates possibility of him *взьякосціологічного* interpretation and demonstrates the necessity of consideration of economic, psychological, organizationally administrative and other constituents of production potential. It follows to add to this parcel, that, in our view, appears a necessity, though difficult enough, exposure actually of sociological descriptions and indexes of production potential. In this connection will consider marketability the requirements pulled out higher to development of this concept – complexity together with a noninteraction, that unambiguity.

Will consider at first existing in domestic and foreign economic literature interpretations of essence and maintenance of the concept probed by us.

In-process [9] production potential is interpreted as a key concept in the analysis of production process, because a process of socio-economic development is not that other, as a process of forming within the framework of existent technology of production potential and process of his realization. Concept production potential engulfs not only descriptions which are

determined the degree of development of production technology (flexibility of technology, new technique) but also descriptions of production climate (socio-economic terms of acceptance and introduction of decisions are about producing goods), description of production activity, project potential (projects of measures, ready to introduction) and description of terms of recreation of raw material, materials and labour resources. As a result an author determines “production potential as category which expresses ability of existent capital and technologies goods to create and realize possibilities of development” [9,c.31]. The offered model of production potential, constructed authors for as a model of Forrester, adds work some globalness and takes from development of concrete indexes, criteria of estimation of production potential, however, from point of depth of analysis of problem this research, undoubtedly, is one of the strongest. Especially meaningful is an output on understanding of production potential as to the mechanism of providing of efficiency of діяльності enterprise. Production potential testifies consideration of the offered concepts that their authors try to present this category as resultant a few associate and mutually conditioned factors among which a main value belongs to the factor “production”. The most substantial descriptions are production potential here taken to the following [5, c.11]:

- production potential as material and technical resources are accumulated;
- production potential as factor by which accumulated material and technical resources influence on socio-economic development;
- production potential as description of power of the accumulated material and technical resources.

Thus regardless of level of its complication, it follows production potential of the by a production system to consider not only and not so much its possibilities on the production of certain commodities and services but also willingness of society to perceive these goods and services for the subsequent effective use. Thus it follows constantly to remember not only about quantitative descriptions but also about the high-quality aspect of sizes of production potential. Consequently, concept «production potential of the by a production system» in relation to the expounded material it follows to perceive how to create *maximum* ability of the system, to make and realize commodities in the conditions of the existent resource providing.

In our understanding *production potential is a complex of economic, organizational and social factors which determine maximum (maximal) ability of object (to industry, region or organization) independently to create, to make and realize the commodities created for itself.*

The resulted determination allows to consider that production potential of the system is formed not only under act of factors, which characterize the amount of commodities which are mined-out into the system, but also as a result of influence of such factors which represent:

- amount of wares which acted through the limits of the system;
- amount of wares, regardless of place of their creation, passed in the sphere of the practical use;
- amount of wares which are utilized users in the process of their functioning.

In this connection it should be noted that a level and, accordingly, production potential in a substantial measure will be certain availability and possibility of making of commodities and services which interested an user [3].

At the practical estimation of production potential it follows to take into account the followings, in our view, conclusions are important.

1. Production potential is all of not resources which support any production activity in every calendar period, but resource providing, which can be utilized for concrete strategic tasks, related to providing of practical sphere necessary commodities and their proper use.

2. It follows to examine production potential not only as a result of production activity in general, and also as activity the results of which are directed on the decision of certain task on introduction of wares and services to the sphere of the practical use and providing of them the subsequent use.

3. Wares, in itself, present a certain resource which utilized being in a charge subjects for the decision of certain strategic or tactical tasks on satisfaction of eventual consumption. In conclusion it is possible to draw a conclusion that it follows to present production potential as a system which provides possibility of activity of production-being in a charge subjects on the followings directions: traditional resources which are utilized for producing goods; novelties-resources which are utilized for the production of traditional goods; novelties, which are made as products, intended for an eventual consumption. For the aims of concrete analysis of production potential and his estimation division on constituents of the analysed parameters and indexes is needed. From their plenitude adequacy of the got model of the real state and dynamics of development of production potential depends in a certain degree. The in-use here set of indexes substantially differentiates depending on concrete aims, volume of constituents, which join in determination of production potential, degree of division on constituentsindexes, and also possibilities of their reflection in statistics or calculation on the basis of present information.

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COMPETITIVENESS AND INSTITUTIONAL CHANGE IN HUNGARY

Zoltán Bartha

PhD., assistant professor

Institute of Economic Theory, University of Miskolc

1. ABSTRACT

The competitiveness of a country, besides the quantity and quality of factors of production, is largely dependent on institutional factors. It is not surprising therefore that the alteration of formal institutions (e.g. laws, measures, policies etc.) is a hot topic nowadays. But it is important to note that the efficiency of formal institutions is based on informal ones. Traditions of a country, culture, the values of the people are all factors that fundamentally affect the functioning of explicitly recorded, and so easily changeable formal rules. Measures taken to enhance the competitiveness of a country often fail to have any noticeable effect, because they don't harmonise with the value system or traditions of the people. The paper provides a short overview on the connection of values and economic performance, then considers the possible efficiency of a few economic policy instruments recently suggested by experts.

2. INTRODUCTION

Until the 1990ies mainstream economics almost completely neglected the institutional factors in the macroeconomic models. The change was brought by the changes in the Eastern Bloc, when the centrally planned economies of the former communist countries were transformed into market economies. At that time most leading economists and policy makers were surprised that the transformation process didn't go smoothly at all. Most countries experienced recurring macroeconomic stability problems, the system that seemed to work well in the US or in Western Europe, showed various signs of malfunction in Central and Eastern Europe. Opportunities presented by the new system were neglected by economic agents, while backdoors left in the system that were never really discovered in the West, were immediately exploited and abused in the East.

The Central and Eastern European developments lead to the blossoming of the institutional approach in economics. Hundreds of articles were published on the connexion of cultural elements, institutional factors and economic performance. It has become clear that the macroeconomic failures experienced in transition economies are partly due to inconsistencies between the formal institutions applied and the cultural endowments of the country. Thus the

transition period not only includes the change from planned to market systems, but also the long iteration process during which the decision makers try to find the best suited instruments for the country.

One way of finding the best institutions is through trial and error. Governments can test several regulatory instruments, check out which ones work and which ones don't. However a better solution is to try to learn from the observations of others. If the critical cultural elements of a country are indentified, one can look into and learn from the experience of countries with similar value frameworks, and so the time needed to find efficient institutions can be shortened considerably.

3. THE INSTITUTIONAL FRAMEWORK

We accept the definition of Douglass North who defines institutions as 'humanly devised constraints that shape human interactions. They reduce uncertainty by establishing a stable (not necessarily efficient) structure to human exchange, whether political, social, or economic' [8, p.3.] Institution can be both formal, and informal ones:

- Formal institutions: laws, regulations, policy instruments etc.
- Informal institutions: beliefs, traditions, culture, values etc.

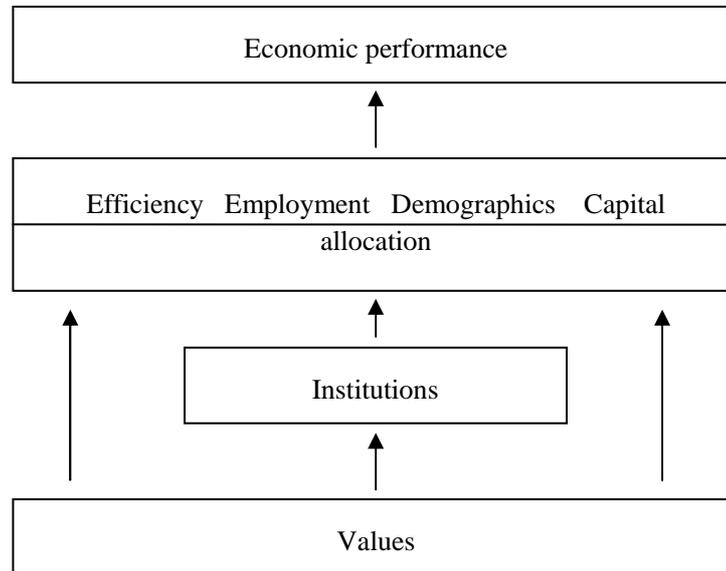


Figure 1
The effect of values on economic performance [9]

Figure 1 shows the connection among institutional factors and the traditional factors of production. Market performance is largely dependent on the regulations that are applied by the government (e.g. protection of jobs, high unemployment benefits can lead to problems on the labour market; central allocation of financial resources may hit the yield of investments; the protection of internal markets can lead to monopolistic structures etc.). Not only that, a certain method of market regulation may be effective in one country, but can be a complete disaster in another one, simply because of dissimilar values. In other words, market performance is not only determined by formal institutions, but also by informal ones, like values and traditions. Finally, values have a double effect on the economic system: a direct one, because they influence the way economic agents behave on the market; and an indirect one, because the values of the population push politicians, decision makers towards certain sets of formal institutions (which will, again, affect the performance of the markets). Formal and informal institutions can also be integrated into the standard macroeconomic models [2]. Generally:

$$(1) \quad Y=F(K,D,E)$$

where Y stands for the output of the economy; K represents the capacity of the economy (the amount of factors of production available); D notes the decision structure of the economy (decisions made by individual agents, and decisions made by the government – many of which can be called formal institutions); while E is the set of exogenous variables. Formal institutions can be included into the model this way, but we can also integrate informal ones in an indirect way:

$$(2) \quad D=F(K,M,E)$$

So decisions are determined by the current internal situation, by certain exogenous factors (like the state of the world market, geographical factors etc.), and also by the values of the decision makers (M), and the people in general. Savings rates, the rate of entrepreneurship, the rate of employment are all outcomes that vary a great deal from country to country, and these variables are all largely determined by the value sets of the people.

Relevant values for the economy

Over the past centuries several values were mentioned as ones that are critical for economic success. Max Weber, whose 1905 essay [13] is one of the pioneering works on the field of institutional studies, claimed that hard work and thrift, values carried by the protestant churches, played a fundamental role in the unfolding of the industrial revolution and the capitalist system in the

West. Similar claims were made by several American authors when comparing the economic performance of North America and Latin America [5].

Looking for new answers and new perspectives, seeking change and creativity were also mentioned in the economic literature as key factors of success. Creativity of the entrepreneur is in the focus point of Schumpeter's work on innovation [12], and some of the so called endogenous macroeconomic growth models included innovation and creativity into their area of analysis [1].

Myrdal also concludes in his 1968 work [7], that cultural factors are the main obstacles to modernisation. The values of the community can enhance, or very often get in the way of entrepreneurial activity: 'the conflict between articulated specific traditional valuations and the modernisation ideals can be expressed in terms of the cost to the latter through lost opportunities' [7, p. 7].

Another strong argument on the connection between economic performance and values is based on the social capital theory [11]. Intensive and meaningful social relations are crucial if a community wants to run an efficient democratic system. But these social relations are important for the economy as well. If the members of a community are interconnected through a wide network of social ties, the cost of doing business is decreased, and new opportunities can be exploited much easier. In other words the horizontal transaction costs are limited to a low level.

Fukuyama [4] makes a similar argument, but instead of sticking to the social capital concept, he introduces trust as a key element of economic success. He distinguishes two main groups of the developed countries: family-centred societies, where trust stops at the borders of the family; and institutions centred societies, where trust is extended beyond the limits of the family. The economy of the countries falling into the former group is based on relatively small, family-owned enterprises, and the role of the government is very important. While countries in the second group have large public companies and a strong civil society, which makes the role of the government relatively unimportant. Although both types have their pros and cons, institutionalised trust is usually considered to be better, because – just as social capital – it also helps to decrease transaction costs.

Bruni and Porta in their 2005 study [3] analyse another interesting element of traditions and values. Economic output can be boosted enormously if the people rank free time lowly, in other words people tend to devote much of their time to their jobs. The superior statistics of the US economy as compared to Europe cannot be attributed to the higher efficiency of the American employees, but rather to the fact that Europeans value free time much higher than Americans, so they work much less. In other words the efficiency per working hour is very similar in the two regions, however Europe has much less working hours because of the different mind set of the European population.

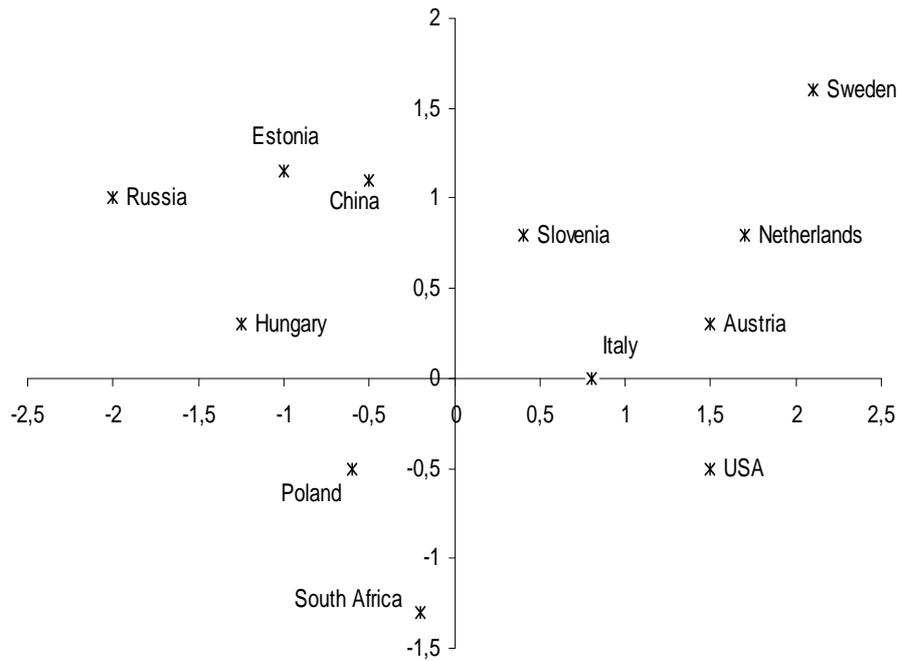
4. MEASURING VALUES

As the examples mentioned above prove it, the literature lists a number of values that can affect the performance of the economy. The measurement of these values however is very difficult. Even more difficult it is to find comparable data, as the number of international projects spanning over many countries is very limited. The two most well known are both Dutch initiatives.

Geert Hofstede's cultural dimensions [6] are the results of one of the main cultural surveys. The survey provides comparable data for more than 50 countries. Among the cultural dimensions are cultural characteristics that have high macroeconomic relevance as well: uncertainty avoidance that deals with a society's tolerance for uncertainty and ambiguity is an important factor in the entrepreneurship level; power distance (the extent to which the less powerful members of organizations accept and expect that power is distributed unequally) on the other hand affects vertical transaction costs in modern, knowledge-based firms. The index values for the five cultural dimensions of Hofstede however are not refined enough: different countries score quite similar uncertainty avoidance index values for example, which makes statistical analyses almost impossible.

For this reason researchers often use the data provided by the World Values Survey instead. The WVS started as the European Values Survey in 1981. The project was joined by Ronald Inglehart, and it was extended to countries all over the world; the latest wave of surveys included more than 60 countries. Although the WVS primarily is a social survey, and so many of the measured values concern the social life within societies, the comprehensive database includes so many analysable data that economists can find a lot of valuable information, too.

Figure 2. shows the position of some selected countries along two dimensions. On the horizontal axes the two extreme points are survival values (left) and self expression values (right). The central component of this emerging dimension involves the polarization between materialist and postmaterialist values. Survival values include: priority to stability and materialistic needs, risk avoidance, hard work, apathy toward others, low tolerance of diversity etc., while self expression values are centred around tolerance, trust, with emphasis on subjective well-being, and priorities to environmental protection.



Source: <http://www.worldvaluessurvey.org>

Figure 2

Inglehart-Welzel cultural map of selected countries

The vertical axes shows the Traditional-Secular scale of values, which reflects the contrast between societies in which religion is very important (lower end) and those in which it is not (top part). An emphasis on traditional values means belief in absolute standards, a need for hierarchy, deference to authority, high level of a national pride, rejection of divorce, abortion and euthanasia. Secular values express opposite attitudes toward the aforementioned issues. These two indices therefore concentrate the effect of several values. All these could be analysed individually as well, but the two dimensions give a good idea of the countries' relative position to each other. As it is shown by Figure 2., more developed countries tend to score highly on both dimensions, while the less developed ones are concentrated towards the bottom left part of the frame of reference.

5. INSTITUTIONAL CHANGE IN HUNGARY

Having seen that values affect institutions and economic performance (Figure 1.), and Hungary's values significantly differ from those of the more

developed countries (countries that usually are mentioned to serve as a model for Hungary, situated to the top right side of Figure 2.), it can be stated that institutions applied in developed countries are likely to fail in Hungary's very different value system. Based on the World Values Survey's results, the paper ponders the possible efficiency of the policy instruments most often suggested to boost the country's competitiveness.

Reduced role of the state

Most experts agree that many of the competitiveness problems are due to that fact that the central budget overextended itself in Hungary. The redistribution rate is as high as 50%, while the burdens on labour are higher than 50%. The high redistribution rate discourages employment and gives way to black payment, and hits hardest the small and medium sized companies, the sector that should play the key role in creating new jobs and boosting economic growth. Therefore it is generally regarded as necessary to reduce central budget expenses, which will make it possible to reduce taxes as well. The most common recommendations regarding the role of state are:

- Reducing the central transfers to GDP ratio;
- Reducing the state's role in the allocation of investment and development resources;
- Reducing the redistribution rate, and especially reducing taxes on labour.

Although the recommendations listed above usually enhance the competitiveness of an economy, one must set them against the value framework showed by the World Values Survey to be able to tell their true efficiency. Figure 2 shows that survival values are dominant in Hungary. The country is characterised by a low level of trust, people's deference to authority is very high, the hierarchical structure of the society still survives, one of the most highly ranked values is stability, decision makers generally try to avoid risky situations as much as possible etc. These values are not in the greatest accordance with the principle of free enterprise and the logic of the free market. In other words: the opportunities offered by the market system are often neglected in Hungary because decision makers are driven by incentives that are fairly alien to the logic of the market.

What we can see is that in countries where the level of trust is quite low, people's deference to authority and vertical structures are high, just as risk avoidance, generally the state and the government is a very important economic actor. Even in very developed countries (e.g. Italy or France [4]), the level of central redistribution is very high, just as the role of government transfers and centrally allocated investment resources [10]. Yet, in these countries survival values are by far not as important, as they are in Hungary.

It seems that in countries dominated by survival values the market system can only be operated efficiently if it is often corrected or overruled by the government. An extremely high level of central redistribution doesn't necessarily guarantee economic success (because there is no guarantee that the government works efficiently), but it seems to be an important prerequisite.

Labour market regulations

While the previous set of institutional changes may not work well in a survival values dominated environment, labour market deregulation may do. The regulation of the labour market is strict in those European countries where social cohesion and solidarity is very strong. But again, where survival values are important, people tend to care only about themselves, so in these countries social solidarity is practically nonexistent. A deregulation of the labour market will not lead to persistent, country-wide protests, as it would do in many Western European economies. But a deregulated labour market enhances the mobility of the work force, and so it can lead to stronger employment figures and a better allocation of resources.

Public transparency

If an extensive central budget is to last, competitiveness is to a great extent dependent on the efficiency of the public administration, or in a wider perspective on the efficiency of the public sector (which includes health care and education as well). Transparency of the public sector therefore is a key element of economic success. If we accept that resource allocation through the market is inefficient at times, and it is the role of the state to stand in and correct market deficiencies, we also have to add that it can only be done if the state works efficiently. Where survival values are dominant however, there is a high risk of corruption on all levels of the society. That is because of the lack of trust, and because of high emphasis on materialistic needs.

That is why breaking down corruption becomes a principal challenge. A major slimming diet for the state could be an alternative solution, but we have seen that it is not necessarily a good option. The transparency of the public sector not only helps decreasing corruption, but it also makes public functions more efficient.

6. CONCLUSION

Economic performance is a function of factors of production, exogenous factors, and also institutional factors. Good formal institutions can make an economy successful, even if it is not well-endowed with factors of production. Bad formal institutions on the other hand can be the major obstacle to economic

development. Whether a formal institution is good or bad, it is determined by informal institutions, such as culture, tradition and values. In short: economic performance depends on the coherence between informal institutions and formal ones chosen by the decision makers, or developed over time through legislation. The paper presents a few instruments that were suggested by experts to counter the competitiveness problems of the Hungarian economy. It suggests that the reduction of government spending and central taxes is not a good solution, because it usually doesn't work in countries where survival values are strong. Taking measures in order to enhance the transparency of the public sector on the other hand is crucial, because if the size of the state cannot be reduced substantially, the efficiency of the public administration is one of the most important factors of economic success. Labour market deregulation is another element of successful institutional changes suggested. Although labour market deregulation can boost employment, most European countries cannot take that opportunity because of spirited protest from the population. In Hungary however, as social solidarity is very low, there are no such obstacles.

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LONG RUN GROWTH EFFECTS OF THE SIZE OF THE STATE SECTOR – AN EMPIRICAL ANALYSIS

Adrienn Erős

PhD., assistant professor

Institute of Economic Theory, University of Miskolc

1. INTRODUCTION

In the study, we discuss the fundamental and disputed issue of whether there is any correlation between the size of the state sector and long-term economic growth, and if so, how strong this relationship is. There are frequently voiced arguments for the “omnipotence” of economic policy, and that the state can do anything that it wants. In the age of *Keynes*, it seemed to be logical that crises can only be overcome by state involvement, while classical economists say that in crisis-free periods, state involvement will distort market balance. [9] A number of experts emphasize that the state should interfere with the operation of the economy to the slightest possible extent, in most cases adding that the primary goal (once the situation is as it is, and in today’s world, mixed economies, where the state and the market exist side by side, are natural) is to maintain the equilibrium of the budget and to reduce the volume of the state debt.

2. THEORETICAL ASPECTS

According to the neoclassical growth theory, long-term economic growth is explicable by two exogenous variables, which are the pace of technological progress and the growth rate of the economically active population. Thus, fiscal policy may only have a temporary effect on the growth rate, although it definitively influences the level of the achieved welfare.

“Endogenous growth is long-run economic growth at a rate determined by forces that are internal to the economic system, particularly those forces governing the opportunities and incentives to create technological knowledge.” [10] This theory is of utmost importance for giving space to fiscal policy in influencing economic growth. “According to the endogenous theory of growth the rate of long run economic growth depends on such governmental activities like taxation, the protection of law and order, supplying infrastructure, defence of immaterial goods, and the regulation of international trade, capital markets and other segments of the economy. That’s why governments can have a wide range of possibilities to influence long run economic growth both in positive and negative directions.” [5] However, growth depends on a number of such factors which the government is unable to influence, such as the fertility of the

population (the willingness to have children) or access to the natural resources. [3] Since my study deals with the impact of tax policy on the long-term growth of the economy, we will now focus on the studies dealing with the impact of the elements of the tax system, out of the wide selection of literature.

There are two methods to measure the size of the state sector.

- On the one hand, we can examine the proportion of state expenses to the GDP (i.e. the size of income redistribution),
- on the other hand, we may examine the proportion of state withdrawals to the GDP (i.e. the size of income centralization).

According to Wagner's Law, the size of the state sector is larger in countries with higher incomes. The growth rate of tax revenue was moving around 9.9 percent in the European countries between 1970 and 1998. [8] According to the theory, the high level of taxation deteriorates growth perspectives through several channels in the long run. According to the endogenous theory, the source of growth is the accumulation of factors of production, this is why the incentives that act against these will reduce the growth potentials. [11] Higher tax levels decrease the growth rate (through the reduction of the available income), as well as the investment rate (through decreasing profitability), thus the accumulation of capital will slow down, which results in ever slower economic growth over the long run, and may also change the marginal product of the capital, thus may divert capital allocation from the optimum level. [6] Tax policy may moderate the increase in the profitability of capital as well, as long as it fails to encourage research and development activity adequately. However, higher tax rates mean a less intense incentive for taking up employment and the accumulation of human capital as well, through their unfavourable effect on real wages.

According to Wagner's Law, the size of the government sector increases parallel to the increasing income levels. The state needs more revenue to cover for its higher expenses, while the higher level of taxes moderates growth. Does this mean that the countries with higher incomes realize a lower growth rate? The idea of absolute convergence is not supported by empirical research but conditional convergence (the approximation of the income levels of countries with the same conditions) is justified by a high number of studies. This means that both too large and too small state sectors are detrimental to growth. At least in theory there exists an ideal proportion of state revenue, which ensures the most efficient financing of the required state services.

The size of the state sector does not influence the growth potentials in itself. [16] The "quality of governing" is a very important factor, which is defined by how efficiently the government uses the available resources. According to *Barro's* 1988 model, in an ideal case, the proportion of the productive expenses of the state and the output is equivalent to the proportion of the productivity of the public and the private sectors. [1] and [4] According to

the model, this optimum condition (which only refers to the proportion of productive expenses) will not change even if the state produces such goods for consumption which are not indicated in the production function of the private sector but appear in the utility function of the consumers. [1] In such cases, logically, more tax revenue is needed (as the Barro model calculates with a balanced budget), which will result in distortion and will slow down the process of growth. [2] The model suggests that the role of the size of the state sector in forming the growth rate is twofold. In the case of a small state, the positive effects are dominant but if the state sector becomes oversized, the negative effects will come to the foreground, as a result of the ever increasing weight of the distorting taxes. [4]

In practice, however, two problems arise in connection with the proposals made by theory. "Two observations can be made related to this aspect. First, the precise determination of this optimal level is practically impossible to make in the real world. Second, all the industrial countries have now tax levels that, at least from the point of view of financing essential spending, are above the optimal level. Therefore, a reduction of the tax level in these countries would promote a faster rate of growth as long as this reduction were accompanied by a reduction in non productive spending" (which is indicated as an input in the production of the private sector). [17]

What can you learn from the empirical literature about the correlation between the size of the state sector and the rate of long-term economic growth? The studies do not represent a uniform standpoint in this respect. No significant correlation has been found by certain studies between the two variables, while others have demonstrated a significant negative correlation, which is suggested by the theoretical models as well. There are, however, other studies that have not found any relationship between the rate of growth and the level of taxation. None seems to have found a positive relationship. [17]

Certain studies have not shown any significant correlation between the level of taxation and the long-term rate of growth. The study prepared by *Mendoza, Milesi-Ferretti* and *Asea* in 1997 can be listed in this category, in which study it is proven that it is *Harberger's* neutrality conjecture [13] that stands the test of reality as opposed to the forecasts of the endogenous models, according to which tax policy is not an efficient long-term tool to change the rate of growth. In their study, they have shown a significant correlation between the tax burdens and the investment rates by analyzing the data of eleven OECD member states between 1965 and 1991 but they have not found the impact of the very same factors on long-term growth rate significant. [13]

Those studies whose authors have found a significant negative correlation between the level of taxation and long-term growth rate are listed in the other category. In *Romer's* 1989 empirical study, a negative correlation was found between income-proportionate state expenses and the long-term rate of growth

[15] on the basis of the data of ninety-four countries collected between 1960 and 1985. *Fölster* and *Henrekson*, in their studies prepared in 1998 and 2000, examined the impact of the size of the state sector on growth, by using two indicators, namely the tax revenue and the proportion of state expenses to the GDP. In the case of both variables, a significant negative correlation was found between these and the rate of growth, with regard to the developed countries. This correlation proved to be closer in the case of the state expenses than for the taxes. [7] *Engen* and *Skinner*, in their 1992 study, also found a clear and strong negative relationship between the tax level and the long-term rate of growth, on the basis of the data of one hundred and seven countries collected between 1970 and 1985. On the basis of their regression calculations, they also assigned a negative impact to the increase in state expenses. [6]

At the same time, in their 1996 study, co-authors *Engen* and *Skinner* concluded from the historical data of the United States of America that in the USA, there is a very slight chance for tax reduction to become self-sustaining, i.e. for such a measure to result in achieving the earlier revenue level as a result of the extra growth generated by the tax reduction itself. [6] In their study, the authors have reached the ultimate conclusion that the structure of the tax system probably has a greater impact on the long-term rate of economic growth than the level of the tax revenue itself. [6]

Thus, the evaluation of the correlation between the size of the state sector and the rate of economic growth is ambiguous in the literature. In our immediate vicinity, among the European Union member states that show faster than average growth rates, it is easy to find countries with larger than average (Finland, Denmark) and smaller than average (Ireland) state sectors. [14] This is why we agree with the above-quoted conclusion made by *Engen* and *Skinner* in their 1996 study [6], which was confirmed (among others) by *Sala-i-Martin* (2002) as well [16], saying that besides the proportion of the state sector to the GDP, most probably the structure of income and expenses also plays an important part in the aggregate impact on growth. This is why we continue to study the literature by discussing the impact of the individual elements of the taxation system on growth.

3. METHODOLOGY USED FOR EMPIRICAL TESTING

The changing of the Regime in 1990 brought such major changes in the system of the economy in Hungary, which make it impossible to use fiscal data from earlier decades. We can only rely on the time-series of data from the last one and a half decades, as earlier trends do not carry relevant information for the present. Fifteen years mean a very short time-period, when discussing long-run matters in economics. Still, as several empirical studies use similar, ten-fifteen, twenty year long time-series, this length can be accepted in our view.

Data newer than 2006 will not be used either to avoid short run, political aspects of the discussion. In order to smooth out the effects of short-run fluctuation of the data (being concerned only with long run effects), we will use three year period averaging.

We use consolidated data from the general government level as fiscal variables in our analysis. Revenue data are taken from the OECD database. [14] Functional classification of the government expenditure can either not be found in international databases (SourceOECD), or contains data only for 2003 and 2004 (Eurostat). These data can only be found in PM ÁPMSO - ÁHIR database, still, the aggregate expenditure of this time-series is different from that of international databases. [14] To make things even more difficult, the difference between the distinct years' data is not systematic, in some periods it can reach even 4-5 percentage points (as a share of GDP), while in others only merely more than half a percentage point. We chose to use inner scaling to solve this problem, and secure the comparability of expenditure and revenue data. Concerning budget balances, international statistical databases publish time-series for Hungary only since 1997, and even those are not consistent with the data of the Hungarian Central Statistical Office (KSH), which is complete since 1990. To solve this problem, we chose to use the difference between the distinct year's revenues and expenditures (both from the OECD database) as budget deficit. The reason for choosing this solution was to secure comparability of the time-series.

Before conducting any further statistical analyses, we have to examine whether their results are acceptable with adequate certainty. For this, we have to test the level of integration of the time series (by applying the extended Dickey–Fuller test of the statistical software E-Views). Such types of testing basically give reliable answers to the question in the case of time series of the adequate length (samples consisting of a high number of elements). In the case of the extended Dickey–Fuller-test, the critical values were defined for 20 observations, however, due to the objective reasons listed above, we only had short periods available for the study (in the case of most variables, we could only build on 8–12 observations - because of the method of using moving averages). It is exactly because of this that we had reservations before performing the test. In spite of this, in a significant proportion we came to the conclusion that our time series calculated with the moving averaging method are stationary, based on which the further tests can be performed. Where the result was contrary to this (i.e. we accepted the H_0 Hypothesis, according to which the time series are integrated), our result was not so far from acceptable (the critical value) either, it was only higher than that (it was relevant on the 15–20–25 percent significance level). On the basis of the tests, we ultimately came to the conclusion that they do not suggest that we should not conduct the planned analyses with our datasets, and should not draw conclusions from these,

although it will be justified to handle the results with a certain level of reservation due to the brevity of the time series.

4. EMPIRICAL ANALYSIS OF LONG RUN GROWTH EFFECT OF THE STATE SECTOR'S SIZE IN HUNGARY

The methods to be applied in this test are rather simple, however, if we use the introductory thoughts of the 2003 Tanzi and Schuknecht study, "rather than adding a new, econometric chapter (which is questionable, similarly to the earlier ones) to the technical literature of this subject, we will conduct a simpler but hopefully still informative analysis". [17] This choice is also justified by the fact that this way our findings will be comparable with the international technical literature. However, in judging such a complex issue as the effect of fiscal policy on the rate of long-term economic growth, "a system with such a low dimension can only be regarded as the »marginalization« of a model with several variables, from which only limited conclusions can be drawn." [12]

In Hungary, we can see a strong negative correlation between the proportion of the budgetary revenue to the GDP and the rate of growth (*see diagram 1*). The strong negative correlation between the two variables is shown in *Diagram 1*: the value of the determination co-efficient is rather high ($r^2=0.976$), significant (0.000). This result is the same as the forecasts made by theory and the models, as well as the results of empirical tests in developed countries.

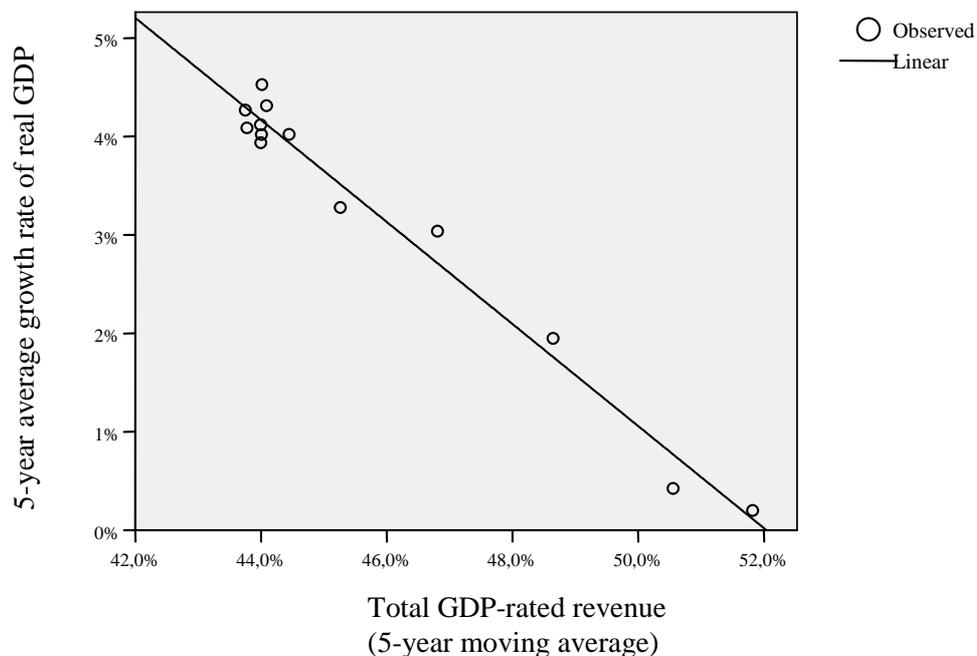
Correlation of the growth rate and the total state revenue as a share of GDP in Hungary

Table 1

Dependent variable: 5-year average growth rate of the real GDP

<i>Equation</i>	Model summary					Parameter estimates		
	r2	F	df1	df2	Significant	Constant	b1	b2
<i>Linear</i>	.976	450.267	1	11	.000	26.978	-.518	

Dependent variable: total GDP-rated revenue, 5-year moving average



Source: own calculation

Government expenses as a share of GDP show a similar pattern to that of aggregate revenues. This time series can be accepted as steady by a 89% certainty (based on calculation made by the E-Views software, we accomplished Dickey-Fuller test as explained in the section dealing with the methods used for analysis), so it can be used for analysis freely. We found a strong negative correlation, the value of the determination coefficient can be regarded as high. This result can be thought of as a proof of the phenomena known as *scale-effect*, which means that the larger scale of the state sector decelerates economic growth according to the endogenous theory of growth.

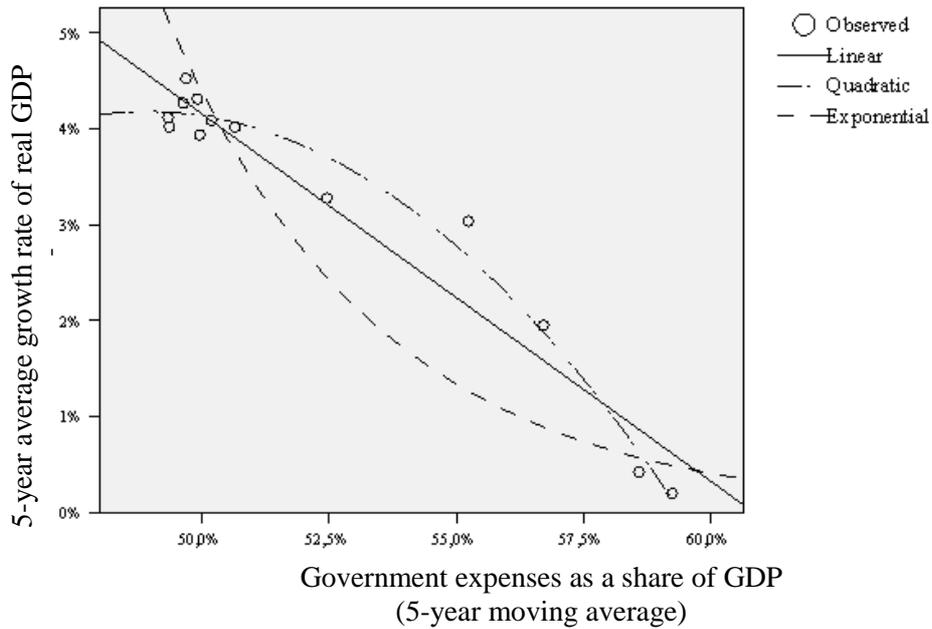
Correlation of the growth rate and government expenses as a share of GDP in Hungary

Table 2

Dependent variable: 5-year average growth rate of the real GDP

Equation	Model summary					Parameter estimates		
	r2	F	df1	df2	Sign.	Constant	b1	b2
Linear	,936	159,879	1	11	,000	23,301	-,383	
Square	,976	204,228	2	10	,000	-86,840	3,720	-,038
Exponent	,788	40,946	1	11	,000	619816,539	-,237	

Dependent variable: total GDP-rated revenue, 5-year moving average



Source: own calculation

5. CONSLUSIONS

Based on the correlation and regression studies, we can conclude, by way of a summary, that the calculated results have proven our expectations developed in the course of studying the theoretical and empirical technical literature. Both indicators of the size of the state sector (the size of income centralization and the scale of income redistribution) is in a negative correlation

with the rate of economic growth in Hungary. This correlation is known as scale effect in the technical literature of endogenous growth theory, and we have proven its existence in Hungary as well.

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THE ENVIRONMENTAL EMBEDDEDNESS OF SMALL- AND MEDIUM SIZED ENTERPRISES

Andrea Gubik

PhD, professor assistant

University of Miskolc, Faculty of Economics

1. INTRODUCTION

The aim of the paper is to analyse the environmental embeddedness of SMEs. With analysing 217 small and medium sized enterprises (10-249 employees) in Borsod-Abaúj-Zemplén County we would like to highlight the environmental embeddedness of SMEs and especially its role on SME cooperation.

Cooperation is not only a possibility that a company can decide on, it is a pressure and therefore the acquisition of the needed competencies is substantial. To get acquainted with the peculiarities of cooperation we can find methods to enhance the cooperation's intent.

There is only a limited opportunity to test environmental embeddedness quantitatively. We could draw conclusions on this matter based on companies' relationships to local authorities, the geographical locations of their partners and the location advantages they felt. Because of the heterogeneity of the sector different results can be expected depending on the size and scope of business.

2. METHODOLOGY

In our empirical work we used the questionnaire accomplished in the framework of the FKFP 0015/2002. education and research project. The data basis constructed based on the results of the survey contains representative data according to employee number and field of activity of 217 small- and medium sized enterprises of Borsod-Abaúj-Zemplén county (10-249 employees). Furthermore, 16 micro enterprises' (1-9 employees) answers were also used, but only in case of the questions concerning the subjective opinions of entrepreneurs about tendencies. In case of these questions we always guided the attention to treat these results with precaution. The county's structure of SMEs concerning the scale of enterprises shows major differences from neither national nor European statistics. If analysing only enterprises employing more than 10 people the distribution of small-and medium sized enterprises is 80-20 percent.

For the analysis of the data we used SPSS 14.0 software package. We analysed the sample by descriptive statistics, multi-variable analysis, cluster-

factor analysis and by correlation showing the strength of stochastic relationship among variables.

In order to be able to draw general conclusions based on my sample we paid special attention to the structure of the sample. We used the layered sample technique belonging to the group of random samples. The reliability of the sample was 95 percent, the sampling error was $\pm 6,16$ percent. During the analysis we used pair wise method, when treating missing values only full answers were used in case any questions. In our research we considered 0,05 significance level to be relevant and gave the probability values by the distinct questions if they differed.

3. THE SITUATION OF BORSOD-ABAÚJ ZEMPLÉN COUNTY

In this paper we would like to demonstrate the county's situation only by laying some data, given the limited framework of this paper. The per capita GDP is 1563 thousands HUF, which is 66 percent of the national average [6]. The same fallback is perceptible in investments, where the county's per capita performance is 64 percent of the national average (215.5 thousands HUF) [7]. The county shows underdevelopment in terms of the economic organisation's statistics as well. Low enterprising willingness implies unfavourable economic situation too. 4.59 per cent of the country's registered enterprises can be found in the county, about 71.5 thousands. This statistic proves that enterprising here is far below the national average. The number of enterprises vested for a thousand inhabitants is 102 while the national average is 156. [7] It partly contradicts the GEM's subsequent survey, as according to it the Northern-Hungarian region is the 4-5th in the region's hierarchy in terms of enterprising activity. According to the authors the better data can be the sign of convergence, in which motorway-building can act as a catalyser. [8] In terms of research-expansion, performance is below the national average again. [5]

Unfavourable economic situation reflects in the social indices as well. Unemployment rate was 14.5 percent in the fourth quarter of 2008, whilst the national average is 8.0 percent. We can find further unfavourable social tendencies while analysing emigration and polarization.

4. RESULTS OF THE EMPIRICAL RESEARCH

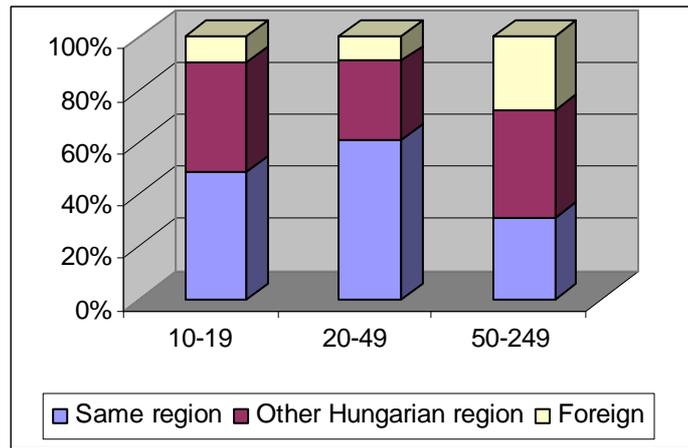
According to newer theories to explain the cooperation among small- and medium sized enterprises a larger emphasis must be put on social- and cultural factors besides technological and economic factors, while on the other hand the local environment's role must also be taken into consideration. The literature concerning these aspects is very rich [8] [1] [4][2]. We used the *embeddedness theory* in the course of our research [2], which emphasises the deep integration of economic relations to social networks.

Partnerships among small- and medium sized enterprises secure *external economies of cooperation competitive advantage* for the companies involved. In connection with the higher importance of distinct subjective factors like social relations or faith which play a more emphasised role in case of small, than in case of medium sized or larger enterprises. In our analysis we only considered one type of embeddedness, the environmental aspects. For the purpose of this research by local environment we meant labour, capital and infrastructure used in economic activities within the borders of a regulation region, independently of ownership aspects.

We started our analysis from the well known fact that local environment is decisive for small- and medium sized enterprises. Still, we supposed that on the one hand local environment is not independent of the geographical situation of business partners and the knowledge companies have on their local environment is beneficial for their economic activities and for their cooperation as well. In order to prove this hypothesis we analysed the role local environment plays in the life of small- and medium sized enterprises as a first step. We only had a limited opportunity to test environmental embeddedness quantitatively. We could draw conclusions on this matter based on companies' relationships to local authorities, the geographical locations of their partners and the location advantages they felt.

We experienced that there is relationship between the judgement of local environment's importance and the size of companies.

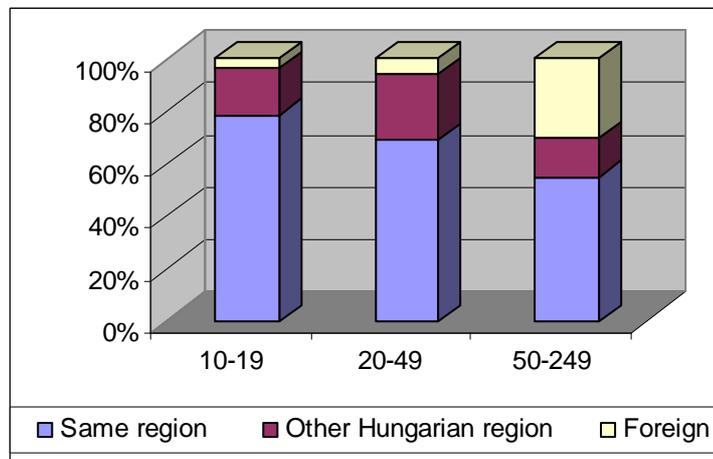
When analyzing the partnerships from the geographic point of view it can be concluded that there is a statistically significant relationship between the geographical distance and the size of the company involved in cooperation ($p=0,01$, Eta 0,341). This means, that the smaller the company is, the more likely its partnerships are concentrated. These are demonstrated by the following figures.



Source: own elaboration

Figure 1

Geographical concentration of suppliers according to the size of the company

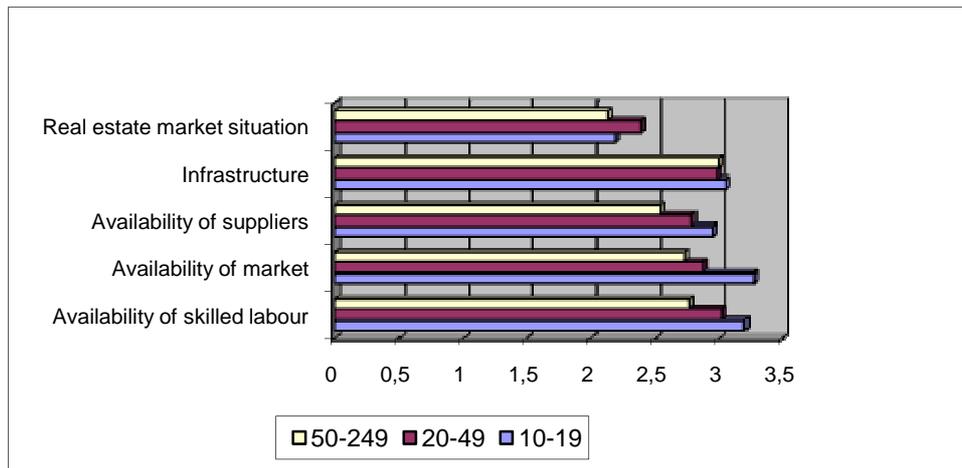


Source: own elaboration

Figure 2

Geographical concentration of buyers according to the size of the company

Following this we asked the companies about the advantages their location holds for them. We found, that with the increasing size of the company, the importance of the possible advantages provided by their own location is decreasing. This connection is demonstrated by the 3rd figure.



1: not at all inspired, 5: highly inspired

Source: own elaboration

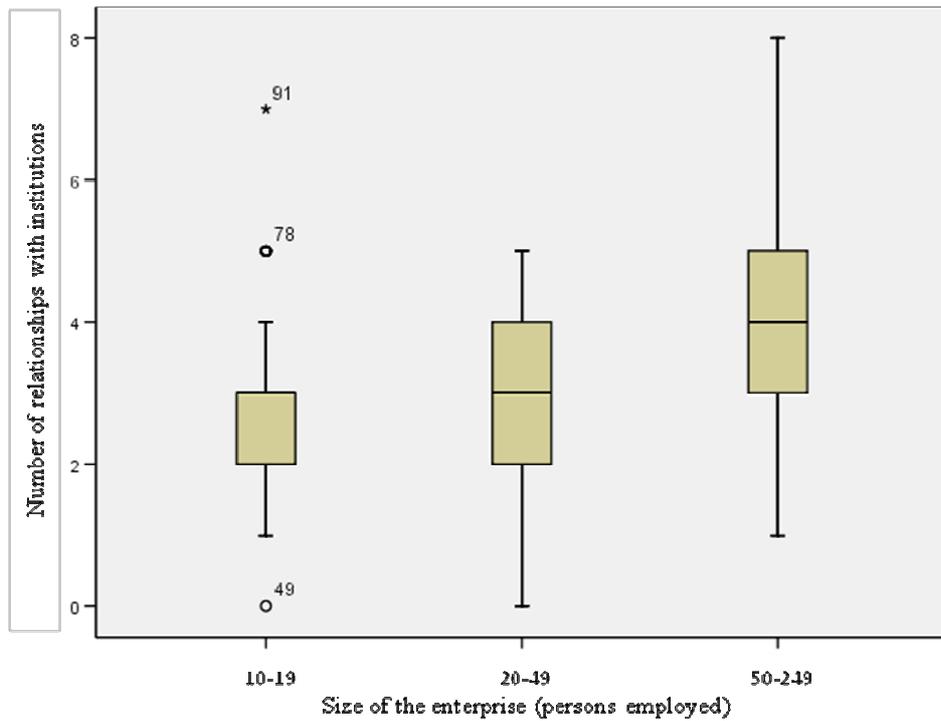
Figure 3

Perception of park advantages' significance according to the size of the company

It was discovered that those companies tend to feel larger advantages which have a more concentrated network of partnerships. These observations led us to form the following thesis: from the point of view of survival for small- and medium sized enterprises generally, and with the decrease of company size, the role of local environment gains importance.

According to one of our assumptions in terms of the determining role of the local environment, enterprises which are present in international markets are not so embedded into their local environment. We found significant connection between the international activity and the importance of local environment: enterprises which are active in the international market as well regard possible advantages provided by their own park less important.

The size of the company influences its relationships to supporting institutions also. It was discovered that the number of relationships with supporting institutions increases with the increase of companies' size (figure 4).



Source: own elaboration

Figure 4

Number of relationships to supporting institutions according to the size of the company

This also lets us draw the conclusion that smaller companies choose different ways of finding the support they need. This speciality also influences the way they obtain *information*. With the increase of company size informal channels are changed for more and more formal ones. The role of supporting institutions is of highest importance for the medium sized enterprises.

As the size of companies increases, their relations to local environment change. Family and friendship plays a more important role in case of smaller enterprises. This is actually one of the main barriers to the exact measurement of relationships among companies, as instead of the length of the actual relationships we can only measure the business relations themselves statistically.

Company size influences partnership characteristics too. Our assumption is that the smaller a company is, the more informal its relationships will be. In case of informal relations, things are settled only orally.

According to our opinion, environmental embeddedness is a major factor of the evolution of faith among companies. We proved earlier that the smaller a company is, the more embedded it will be in its local environment, and the more concentrated its relationships will be. The geographical closeness of business partners makes it possible to form personal relationships and contributes to the evolution of faith among partners, so to gain a more and more personal, informal form of these relationships.

The role of informal relationships was taken to the focus of research attention by the appreciation of the requirement of flexibility. With the help of these, the activity is easier, faster, and less expensive to adapt to the actual conditions, meaning economic advantage for the companies involved. Cooperation, mainly its informal way supposes faith among partners, the evolution of which is a lengthy process (among other factors we draw this consequence based on the age of relationships) which was not benefited by the ever changing circle of entrepreneurs of the 1990's, nor the missing (formalised and society) efficient sanction mechanisms of the institutions. This lets us suppose that the share of formal relationships will increase in our sample compared to the informal ones.

In the course of our research we found that about 24 percent of relationships are informal. After the analysis of relationship characteristics and the interrelations of the companies in the sample we draw the conclusion that the form of relationships is a function of the companies' performance. The increase in the scale of the company and in the performance of the company brings formal relationships to the foreground. This tendency can be found when analysing the subjective performance of companies. So, even though literature emphasises the importance of informal relationships among other factors, because of the flexibility of the company, we were not able to prove its advantages.

Even though we know that larger companies' relationships are not fully formalised either, we can informal decisions beyond the formal partnerships in their cases as well, but the framework of our research did not let us dig that deep in the matter. So, our declarations on the formal, informal characteristics of relationships can only be relevant for the researchers.

5. SUMMARY

According to our results there is a linear relationship between the geographical distance of partners and the size of the surveyed company: the larger the size of the company is, the more likely it is to have more distant economic partners. In the same time the importance of local environment is decreasing.

There is a relationship between the characteristics of partnerships (formal/informal) and the scale of the company. As the size of the company

increases, formal relationships gain more importance, for the cost of informal ones. The increase of companies' performance brings the increasing share of formal relationships with itself.

Quite serious attention was focused on cooperation among companies in the last years (its motivations, barriers, framework of conditions). Even though it is very difficult to measure quantitatively the direct effects of cooperation on companies' performance (as several earlier empirical work draw attention to it) still indirectly, we have to approve the appreciation of cooperation in companies' lives. The most important consequence for supporting institutions is that a key question of the development of small- and medium sized enterprises is to motivate them and reduce the felt (imagined or real) obstacles. Getting to know the opinions of entrepreneurs, the motivations and obstacles they feel can be useful for the institutions regulating and supporting the operation of small- and medium sized enterprises, and for the representing unions of the enterprises themselves too.

The survey of the county was a one time, cross section research, but we see the opportunity to broaden it to the North-Hungarian Region, with some adaptation of the questionnaire. This would enable us to make a regional comparison and moreover, to compare our results with the Observatory of European SMEs results on small- and medium sized enterprises.

Further qualitative research should be made, as the barriers of our research showed, which evolved from the complex nature of relationships among companies. This complexity of the system of relationships and the analysis of embeddedness requires qualitative methods to be used. Data standing at our disposal did not enable us to map all the relationships between factors of partnerships fully, mainly in case of reasoning, so further efforts should be made to answer all questions.

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REGIONAL DISPARITIES OF THE TRANSPORT INFRASTRUCTURE IN NORTHERN HUNGARY

Ildikó Győrffy

assistant lecturer

University of Miskolc,

Institute of World and Regional Economics

1. INTRODUCTION

Works that analyze the economic impacts of the transport system mostly have deal with the level of the country or a larger territory. But the effects on the regions or subregions have increasing importance. The inadequate quality, density of the minor-, access- and connecting roads as well as the low quality of the transport services might be one of the most important reasons for regional disparity. In this aspect the quality and quantity of the micro relations belongs to the aims of the road infrastructure developments. [5;10;14]

In my research papers I analyse the availability as the term of competitiveness, internal and external connections and of choice of location. The main problems of the Hungarian regions – in infrastructural aspects – arise from the inadequate road and rail networks – bad condition, quality and low weight-bearing capacity – that are able to delay the economical and social development to a great extent mostly in those settlements that are in the periphery of the regions, in a relative confinement. Taking the North-Hungarian region as an example, mostly the inadequate density of the minor-, access- and connecting roads cause disadvantages, and the low-quality transport services in the rural areas that restricts the economic growth, it might be a reason for areal disparity. The development of these factors, to streamline and enlarge the regional road infrastructure would be necessary and have to be in a dominant position in the future to make the quality of life better, to ensure the connections into the global economic to assist, increase the economic development processes and to improve our competitive potentials. [1]

2. COHERENCE BETWEEN AVAILABILITY AND COMPETITIVENESS

According to several literature and references, the availability and the adequate infrastructural conditions appear as an independent term of competitiveness in many cases. During the survey of the other terms we have to take into consideration, that in accordance with the economic situation and its main scope of activities and realizable aims, different elements and service

claims become the key issue and propulsive power for the economic development in different time period. [5]

For the word of competitiveness there is not any consistent definition in the economic literature. An "official" determination of OECD of a nation's competitiveness is "the degree to which a country can, under free and fair market conditions, produce goods and services which meet the test of international markets, while simultaneously maintaining and expanding the real incomes of its people over the long term". [19]

Competitiveness equally requires innovation potentials, achievement, successes in business and cooperation processes inside and outside of agglomerations, regions and national borders. According to its mission, it means a branch of industry, product or a kind of economic strength that is able to constitute propulsive power for business actors or institutions of the region. Consequently, it is an essential point, how are the sphere of large enterprises, knowledge-based innovators and small and medium enterprises able to cooperate effectively. [12]

In the pyramid model of Imre Lengyel and János Rechnitzer, there are ex post and ex ante elements connected to the competitiveness. The main aim is to improve the quality of life and the standard of living, for that the development of the preconditions – for example the availability and infrastructural elements – are essential in the long run. [13]

Although the infrastructural extension is reasonable in many ways – the good availability and well-expanded internal connections are necessary preconditions almost for all factors – it is not able to be declared squarely, that the network development of any transport sector has a positive effect on the competitiveness.

Through the competitiveness the term of availability also plays an important role in the choice of location. In these days the rate of the tertiary sector is commanding, the product differentiation became dominant, due to the globalization the role of the agglomeration economy, clusters, supply chains and cargo networks is increasingly important, and in the case of that the transport and infrastructural preconditions have an adequate function. Although the infrastructure does not have an independent attractive force, it is able to operate effectively through the integration into the economic systems and to promote regional development processes. [11]

3. ECONOMIC IMPACTS OF THE TRANSPORT INFRASTRUCTURE

The transport infrastructure terms have important effects on the economic conditions of an area as discussed above. The different impacts mainly arise from the changes or developments of the transport infrastructure. When the transport conditions improve as well as the availability and attractiveness of

locations, prospectively the firms and consumers react positively. The changes in the transport costs are able to have an effect on the freight and passenger movements as well as on the market size. Transport system improvements are able to increase the labour market and can have an influence in the migration processes and also have an effect on property and housing markets. [16]

These positive impacts – mainly the increased transport claims and mobility – also require the further development of the availability conditions. From the introduction of the availability terms, the spatial, temporal and qualitative terms are well separated. To improve all of these factors would be necessary to improve the competitive potentials of a territory and also to assist and increase the economic development processes.

Open and dynamic economical system of terms	
<p>1. Strong economic self-sufficiency and environment protection.</p> <p><i>Infrastructural investments have encouraging effects.</i></p>	<p>2. International and national markets with development potentials.</p> <p><i>The well-developed infrastructure supports the development processes, but not as an inevitable term.</i></p>
AVAILABILITY with low quality level	AVAILABILITY with high quality level
<p>3. The inadequate infrastructural terms conducive to the lagging behind, but only the infrastructural developments are not able to result economic boom.</p> <p><i>Lagged behind, isolated, static territories.</i></p>	<p>4. In spite of the favourable conditions the further investments have low effects because of the lack of adequate economic terms.</p> <p><i>Lagged behind territories, exceptional zones near the junctions.</i></p>
Closed and static economical system of terms	

Figure 1
Coherence between the economy and transport investments [16]

The transport network is able to be regarded as an optimal term as long as it can provide a satisfactory accessibility of the region or the territory from other areas and can allow an economical availability of several markets that are important for the certain region. These conditions are able to become realized if the transport network of the area is an integrated part of the European networks and the connections are optimal for the territory. [18]

At the same time the fact has to be taken into account that the improvement of the micro connections also plays an important role in the competitiveness of an area, and in this regard the minor road infrastructure, the local network system might become more necessary for the region than for example one of the transeuropean transport corridor. [5]

The utility of the infrastructural investments from the point of view of the local or regional development is not obligate. The model of Banister and Berechman analyses the coherences between the economy and transport investments. They introduced the open and closed system into the analysis of the transport investment surveys. The system is called open, when the political and economical factors are secured.

The other important viewpoint is the accessibility. Only the positive motion on the axle of availability is not able to signify economic development automatically, just in the cases where the open and dynamic system exists. In the second case the well-developed transport infrastructure is able to support the development processes, but it is not an inevitable term. In the dynamic system positive effect might be partly discovered, where the infrastructure provides just low-level accessibility – as we can see, in the first case the infrastructural investments have also high encouraging effects. But in the other assumptions the infrastructural developments are not able to result economic development, because some other economic terms are missing. [16]

Disparities in the North-Hungarian region

Accordingly, the adequate infrastructural terms are important indirect preconditions to improve the competitiveness of an area. The availability problems and the weak cohesion among certain areas are able to cause regional disparity inside a region, which problems can delay the economical and social development to a great extent mostly in those settlements that are in the periphery, in a relative confinement. But in every case we have to take into consideration, that in addition to the infrastructural terms, other economic conditions have to exist to assure the economic development of a region.

In case of some Hungarian regions we can say, that the availability through the road infrastructure is satisfactory, inside the region many accessibility deficiencies exist. There is weak cohesion among certain areas that has a negative effect on the capital expenditure, market relations as well as of the quality of life. Taking the North-Hungarian region into consideration, we can

say, that the highway that reaches the southern part of the region is not able to connect easily the micro areas of the central and northern territories into the national economic activities. One of the main problems is that the minor road system and other adequate possibilities of the connection have not existed yet, and these facts result, that the foreign investors, who prefer the good availability, might invest in other territories. [3;8]

In my research I analyse the North-Hungarian region with its problems that I discussed above. Since the M30 highway has reached Miskolc, the capital of Borsod-Abaúj-Zemplén county, the availability of the region has greatly improved, the main important connection with the central area of the country has been attained. The main problem comes from the quality and the condition of the public road infrastructure – mostly of the minor-road system; they are much worse than the European and the national average. The availability of huge number of towns in the region – mainly in the subregion of Ózd, Bodrogeköz and Edelény – is possible from only one direction. Several settlements of Nógrád county have the most disadvantageous position with extremely long accessibility times. Because of these, the western territories of the county build contacts with Central Hungary instead of the North-Hungarian region – weaken further the internal connections inside the territory.

With the Bennett's method in my earlier research papers I have compared the regional and national conditions with using ten indicators of the road- and subsidiary road infrastructure. I also mentioned some facts about the availability possibilities by public transport services of rural areas.

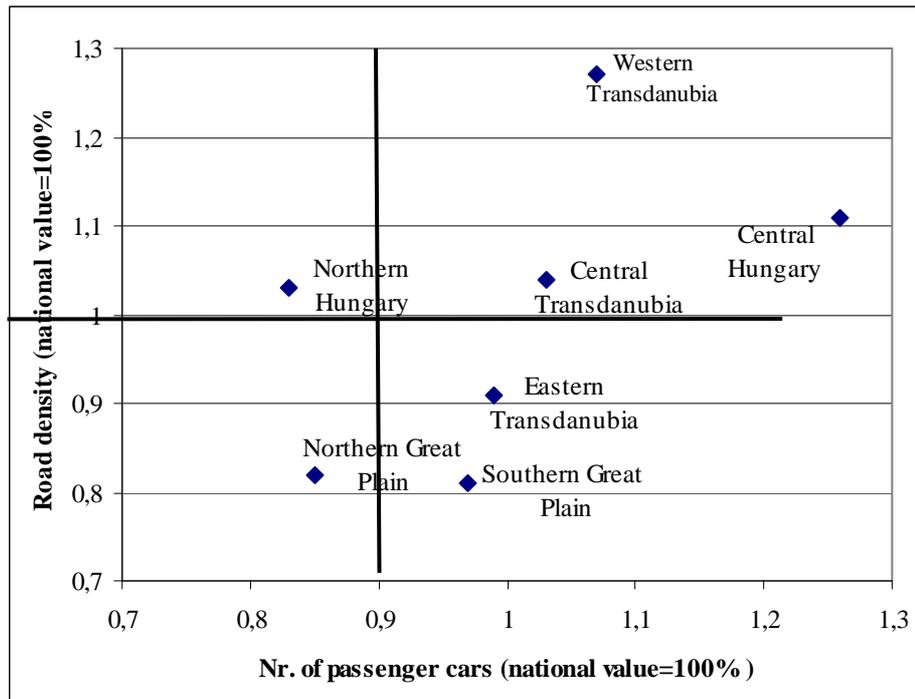


Figure 2

Rate of road density and number of passenger cars (national value=100%)

Taking the national value as a base, the road density and the stock of the passenger cars have the following values in the case of the seven NUTS-II regions. The Figure 2 shows, how are the number of passenger cars and road density values related to each other. Central Hungary, Central and Western Transdanubia are above the national average at both terms. The eastern part of the country is lagging behind the others, the number of passenger cars are under the average as well as the road density – except Northern Hungary. All these factors might reflect income conditions as discussed above.

Although it is noticed above, that the North-Hungarian region is significantly under the national average according to the number of passenger cars per 1000 person – as well as the average age and type structure of the cars – road capacity problems are exist here also. In the North-Hungarian region there was a remarkable growth from the year of 1995, but in spite of this, the extension of the road infrastructure have not been in line with the claims: the dynamic expansion of the traffic and the number of cars indicates increasingly the lack of the capacity of roads – mainly around the cities and settlements with higher population.

the county capital – it is a further problem that the possibility of travel without changes is hard to be ensured. The role and attractive force of the county capitals according to their economic and administration functions cover the whole territory of the county. To assure their direct availability would be an important aim in the future. [3]

Table 1
Availability of settlements with public transport services in 2003 [3]

County	Ratio of population of settlements		
	that are available from the county capital		that are available from other cities in the zone only with change
	only with change	within 1 hour	
	%	%	%
Borsod-A.-Z.	26,8	51,3	12,0
Heves	34,8	28,2	8,4
Nógrád	37,4	42,5	3,3

These facts are reliable mostly in those settlements that are in the periphery of the region. To assure the internal cohesion such an adequate network density is necessary, that is able to promote the development of the territories to a similar extent. The vehicle stock also needs to be modernized and expanded as well as the comfort class of the public transport vehicles that is also remarkably low. The development of these factors has to get a high importance in the future to make the standard of living and the quality of life better and to ensure the connections into the global economic and social processes. [16;17]

4. SUMMARY

The infrastructural terms are important preconditions to improve the competitiveness of an area – certainly not as an independent term. The inadequate availability is able to cause weak cohesion and regional disparity inside a region, which problems can delay the development processes. On the other hand, the extension and improvement of the networks have a positive effect on the peripheral territories. It may influence – through the availability and attractiveness of locations – increasing mobility, larger market size that is a precondition for increased productivity. The transport network intensify the regional connections, therefore its development increasingly become an important aim.

According to the most important infrastructural indices, the North-Hungarian region is lagging behind among the seven regions. The main problems arise from the inadequate quality and density of the minor-, access- and connecting roads between small settlements and the low-quality transport services in the rural areas. These disadvantages restrain the economic development processes, therefore the improvement of these conditions have to become dominant factors in the future to make the quality of life better, and reduce the drawbacks, improve the competitive potentials and to promote the development of the territories to a similar extent in the region.

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STRUCTURAL SHIFTS IN NORTHERN HUNGARY

Ildikó Kneisz

assistant lecturer

University of Miskolc,

Institute of World and Regional Economics

1. ABSTRACT

The paper presents how economic structural changes effect a territory's economic growth. To show this effect is not that easy since changes of economic structure take time, and the result of changes appear shifted in time in the examined regions. Researchers examining reasons of income disparities among countries pay attention to the question how differences of GDP levels and growth rates can be explained by the economic structures. Literature of economic development sets store by explanatory potential of differences in macro-structures in countries within especially for share of agriculture in gross domestic product.

Keywords: *regional growth, territorial disparities, sectoral analysis, shift-share analysis*

2. INTRODUCTION

Several studies (e. g. European Commission 2001; European Commission 2004; Petrakos 2000) confirm that throughout the last decade the accession countries witnessed increasing regional disparities. In its latest report on economic and social cohesion, the European Commission (2004) finds that economic growth in the CEECs has not been regionally balanced.

Growing empirical evidence (e. g. Bachtler et al. 1999; European Commission 2001; Petrakos 2000; Resmini, 2002) points to one type of winner and to two types of losers among the accession countries' regions: in this admittedly simplified dichotomy, the metropolitan and urban areas (namely the capital city regions) belong to the former group, the rural and old (declining) industrial areas as well as those in the Eastern peripheries belong to the latter group.

According to Lócsei (2004) on national and international level is confirmed that since the industrial revolution economic state of development and macroeconomic structure – from the point of view of production and

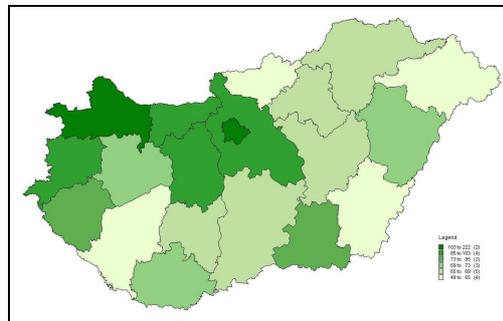
employment – is a strong connection. By statically (cross-sectional) and dynamical (time series) can set out that by economic development the share of agriculture is decreasing in employment also in economic value added, and the share of industry and services is increasing.

Regions' economy can be structured traditionally into three sectors. In the primer sector (agriculture, hunting, forestry and fishing) basically the lands as capital goods have determining role; in the secondary sector (industry and manufacture) are stressed processing and transformation as long as the tertiary sector (services) has human resources a function.

In this study we try to find out whether development differences are caused by regional position or economic structure. Main indicators are regional GDP and employment in the examined regions in Hungary and all sources of indicators are Eurostat electronic and printed database and Hungarian Central Statistical Office database.

3. DISPARITIES IN ECONOMIC PERFORMANCE IN NORTHERN HUNGARY

All three Northern Hungarian counties show a very weak economic performance in the last years. Ranking by GDP per capita presents that Heves County reaches a middle position among 20 territorial units since 2000. Compared to the national average it goes up to 71,4% in 2000 and 74,7% in 2003, but after 2004 a short slow down happens. In case of Borsod-Abaúj-Zemplén County an upswing came after 2003 but it didn't last more than 3 years when a backsliding came. The third county in this northern part of Hungary represents for more than seven years the worst economic performance with about half of the national GDP per capita. Disparities at national level remained or grew even in 2006 (Figure 1).



Source: Own compilation on Eurostat database

Figure 1

GDP per capita in percentage of national values, 2006 (%)

At EU-level the twenty lowest regions in the ranking are all in Bulgaria, Hungary, Poland and Romanian 2006, with the lowest figures recorded in Nord-Est in Romania and Severozapaden in Bulgaria (both 25% of the average), followed by Severen tsentralen (27%) and Yuzhen tsentralen (28%), both in Bulgaria (Table 1).

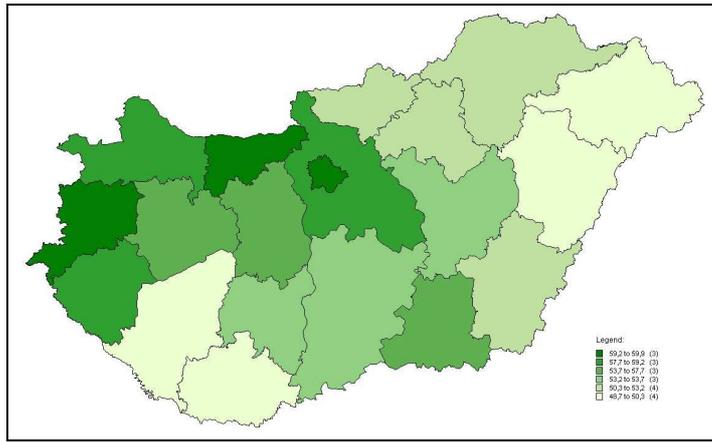
Table 1
Regional GDP per inhabitant in the EU27 in 2006
(in PPS, EU27 = 100)

The twenty lowest performance					
1.	Nord-Est (RO)	25%	11.	Podkarpackie (PL)	36%
2.	Severozapaden (BG)	25%	12.	Nord-Vest (RO)	36%
3.	Severen tsentralen (BG)	27%	13.	Centru (RO)	38%
4.	Yuzhen tsentralen (BG)	28%	14.	Podlaskie (PL)	38%
5.	Sud-Vest Oltenia (RO)	30%	15.	Warmińsko-Mazurskie (PL)	40%
6.	Yugoiztochen (BG)	31%	16.	Swietokrzyskie (PL)	40%
7.	Severoiztochen (BG)	32%	17.	Észak-Alföld (HU)	40%
8.	Sud-Muntenia (RO)	32%	18.	Észak-Magyarország (HU)	41%
9.	Sud-Est (RO)	33%	19.	Opolskie (PL)	42%
10.	Lubelskie (PL)	35%	20.	Dél-Alföld (HU)	42%

Source: Eurostat – Newsrelease - 23/2009 - 19 February 2009

Among the 68 regions below the 75% level, fifteen were in Poland, seven each in Romania and the Czech Republic, six each in Bulgaria, Greece and Hungary, five in Italy, four each in France (all overseas departments) and Portugal, three in Slovakia, one region each in Spain and Slovenia, as well as Estonia, Latvia and Lithuania.

Disparities in activity show more than 10%-point differences in 2007 (Figure 2). Highest rate in Budapest (59,9%) and the lowest in Baranya County (48,7%). Northern Hungary appears like a homogenous territory according to this indicator but these levels are especially low in EU comparison.



Source: Own compilation on Eurostat database

Figure 2

Activity rates in Hungary, NUTS 3, 2007 (%)

Primary sector in Hungary has a bigger part in the regional employment than the European average (4%). Only to regions show a different characteristic. Central Hungary which contains also the capital city has less than 2% employment in agriculture, and also Northern Hungary has a low agricultural employment none the less in this region we can find several wine territories, fruit plantation or farms. As Figure 3 shows to the high agricultural employment is linked a low economic performance, less than EU average.

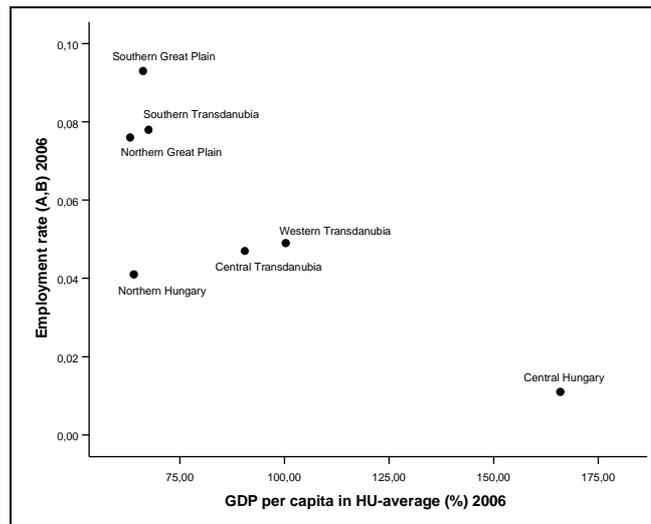


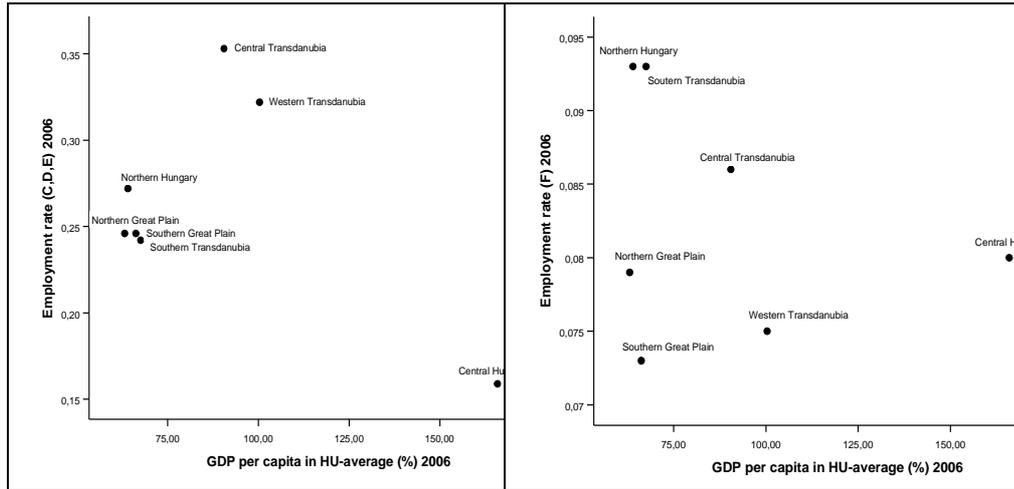
Figure 3

Regional employment positions in primary sector, 2006

Source: Own compilation on Eurostat database

All Hungarian regions perform above 40% in GDP in EU-average but with a significant lower rate of employment in agriculture. It means that the domestic value added comes in Hungary not from agriculture. Industrial employment is in all regions between 15% and 35% (Figure 4). It is shown that this branches (mining and quarrying; electricity, gas and water supply) gives the second largest part of regional employments. In Hungary this high rate appears in Central Transdanubia and Western Transdanubia where the bigger industrial investments happened in the last years.

Northern Hungary shows only in the construction branch any emerge point with over 8% of employment.

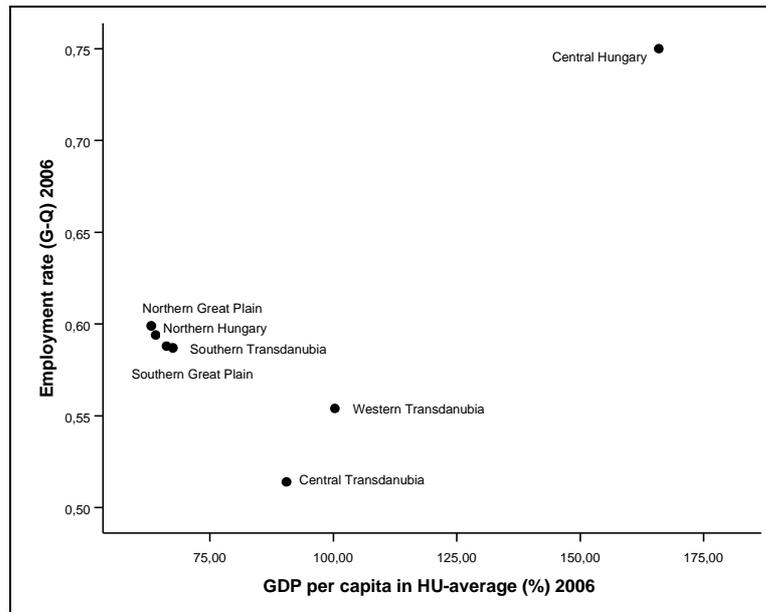


Source: Own compilation on Eurostat database

Figure 4

Regional employment positions in primary sector, 2006

Disproportion of Hungarian employment structure analysis shows that in Central Hungary works the most people in services as finances, merchandise, tourism and public administration (Figure 5). Other point of view presents that the capital city and the biggest cities have the better employment potential thanks to larger companies. The small cities and other settlements have a high rate of micro and small enterprises which have a lower employment potential.



Source: Own compilation on Eurostat database

Figure 5

Regional employment positions in primary sector, 2006

Among the Hungarian counties in Pest and Fejér has increased the number of employees while the biggest losers are Borsod-Abaúj-Zemplén and Baranya in this decade. In the 90s the most dramatically job loss occurred in the material branches in Northern Hungary and Southern Great Plain where until now is to feel some backwardness (Kocziszky, 2006). In the first case breakdown of heavy industry and mining meant difficulties which were mainly caused by the government by financing for too long this industry and forcing the necessary structural changes in the regional economy. In Southern Great Plain a crisis of agriculture has been a bar of development as this area is one of the most important agricultural centres in Hungary (Kocziszky, 2003).

Connection between employment rate and regional economic performance correlate in case of Hungary only in agriculture but negative. So when agricultural employment declines economic performance should get even larger as industrial and service sector value added gets higher.

Table 2
Correlation between GDP and sectoral¹ employment in Hungary

	Units	Employment rate (A,B) 2005	Employment rate (C,D,E) 2005	Employment rate (F) 2005	Employment rate (G-Q) 2005
GDP (EU25=100)	n=7	-0,757	-0,451	-0,409	0,710
Sig.	---	0,05	0,309*	0,362*	0,074*

* No sig.

Source: Own compilation on Eurostat database

4. METHODOLOGY AND DATA

In case of economic structure analysis to the different approaches belong different method backgrounds. In most cases simple and complex quantitative methods are applied. In regional researches we can use two ways to solve measurement problems. One could be the way of simplification so selecting one or only a few indicators and analysing them. The other possibility is to choose a wider view and analyse many indicators at a whole (Rechnitzer ed., 1994).

Shift-share analysis is a method of decomposing regional income or employment growth patterns into expected (share) and differential (shift) components. The description of the economy provided by shift-share can be used in research that explores the reasons for change. It is strictly a descriptive technique. By itself, it cannot be used to elicit the determinants economic trends.

The technique was first applied in the U.S. to calculate employment change from 1939-1954 (Dunn, 1960). Its origins date from the 1940's when an economist for the U.S. Bureau of Labour and Statistics developed the concept of "location shifts" used to measure growth trend differences between the nation and its states (Cramer, 1942). Shift-share is utilized by regional economists,

¹ *Analysed sectors:* A, B (Agriculture, hunting, forestry and fishing); C, D, E (Mining and quarrying; electricity, gas and water supply); F (Construction); G, H, I (Wholesale and retail trade, repair of motor vehicles, motorcycles and personal and household goods; hotels and restaurants; transport, storage and communication); J, K (Financial intermediation; real estate, renting and business activities); L-Q (Public administration and defence, compulsory social security; education; health and social work; other community, social and personal service activities; private households with employed persons).

community planners, and policy analysts to provide quick sketches of the economic landscape of both rural and urban areas.

Shift-share analysis decomposes regional growth into separate and unique factors influencing the prosperity of spatially distinct areas. Most shift-share models are mathematical identities expressing economic upswings (or downturns) as a function of three broad factors: the national growth effect, the industrial mix effect, and the competitive effect. Between any two time periods, the observed change in growth is assumed to be the sum of these three effects or components.

The classic shift-share model is defined as:

$$E_{ij}^t - E_{ij}^{t-1} = \Delta E_{ij} = NE_{ij} + IM_{ij} + CE_{ij}$$

E_{ij}^t = Employment (income) in the i^{th} sector in the j^{th} region at time t

NE_{ij} = National Growth Effect

IM_{ij} = Industrial Mix Effect

CE_{ij} = Competitive Effect

Applicability of shift-share method (Kalocsai and López, 2005):

- Analysis of structure of branches
- Merchandise and market analysis
- Migration analysis
- Analysis of regional growth (neoclassic point of view)
- Forecasting (economic growth, population)
- Regional specialisation
- Demographic analysis

We analysed 3 counties in Hungary. These Northern Hungarian counties are mainly worse economic situation compared to the other part of the country and the territorial structural shifts can show which branches has a local potential for the future.

5. RESULTS

All three counties show positive results according this shift-share analysis although all previous indicators has show unfavourable economic situation in this region.

Table 3
Role of local and structural effects in the employment changes in Northern Hungary (2000-2006)

Borsod-Abaúj Zemplén County	Total shift is positive and the regional effects exceed structural ones. The county is growing faster than the national average thanks to favorable local factors and employment's composition. Regional policy should concentrate on dynamic branches (chemistry, machinery, nanotechnology) in order to compensate backsliding branches.
Heves County	
Nógrád County	

Source: Own compilation

Budapest and the Western regions bordering Austria were able to benefit from the transition process and the relocation of manufacturing activity and investment: many new companies, massive inflows of FDI and relatively low unemployment rates can be found in these areas. Generally speaking, Budapest and Hungary's Western parts are characterised by good infrastructure links (e. g. the M1 motorway), a dynamically growing private sector activity and by a great number of international joint ventures which act as connections to international networks (Bachtler et al., 1999). Whereas Budapest has attracted basically tertiary activities (mainly financial services), the counties of Győr-Moson-Sopron and Vas have become centres of specialised industrial mass-production (Rechnitzer, 2000).

The Eastern periphery (the counties of Szabolcs-Szatmár-Bereg and Hajdú-Bihar) suffers from a regional crisis in the manufacturing and agricultural industries which had been producing for the Soviet market: three Eastern Hungarian industrial counties account for around 35 per cent of the country's total unqualified and unemployed workers. The employment power of the weak service sector is still far too low to absorb those who lost their jobs due to the systemic change.

In general, Hungary's Southern; Northern and (North-) Eastern counties have comparatively poor infrastructure connections, small numbers of joint ventures and a very weak private sector (Bachtler et al. 1999). Among other factors, it is the lack of favourable transport connections that makes regions like North-East Hungary and the Great Hungarian Plain far less competitive (Rechnitzer, 2000). Hungary's Southern, Northern and (North-) Eastern border regions are all peripheries, their economic sources and potential are still moderate and limited (Rechnitzer, 2000).

Table 4
Re-positioning of regions

		Position in the post-socialist transition and EU integration process	
		Good	Bad
Position in the socialist economy	Good	Positive continuity ('the leaders'), e. g. great urban agglomerations, mainly the capital city	Negative discontinuity, e. g. (old) heavy industry regions facing massive restructuring
	Bad	Positive discontinuity ('the newcomers'), e. g. Western regions, mainly those bordering old EU members like Austria	Negative continuity, e. g. the 'Eastern Wall', i. e. the Eastern peripheries with Ukraine or Romania as neighbours

Source: Gorzelak (2000, 135–139).

6. CONCLUSIONS

We appointed as aims of work to analyse how economic structural changes could effect a county's economic growth and development. We have chosen three counties to examine like Borsod-Abaúj-Zemplén, Heves and Nógrád. To analyse the effects of structural changes we have a lot of methods where we took shift-share analysis because of its applicability on regional database according to international literature. My calculations proved that in some regions a structural effect but in other ones the local influence affects more economic performance or employment situations. Dynamic effect of structural influence has two components. One we can see when in a region's economy some dynamic braches share grows against less dynamic branches. But it can happen that – using special local endowments – in the region located enterprises are altogether more profitable than their branches in national average. In the first case the advantageous economic structure while in the other case the locally dynamic structure's advantages occur (Nemes Nagy, 1987).

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CENTER VERSUS PERIPHERY – RESEARCH AND DEVELOPMENT ACTIVITY IN REGIONAL COMPARISON

László Molnár

assistant lecturer

University of Miskolc, Institute of Marketing

1. INTRODUCTION

Afforded achievement of the scientific and the technological areas is one of the determinant conditions that increase the competitiveness and productivity of economy. Accordingly, the promotion of research and development activity has vital priority in the development policy of Hungary. However, some issues come up: How are R&D input and output divided among the country's territorial units? Is it possible to put the regions in a definite order on the basis of R&D activities? Does center-periphery relationship exist in R&D sector as we get used to it in other areas of economy?

In the first part of my study I will examine the R&D activities of the Hungarian regions, separating the absolute and relative indicators which describe the research and development in different classes. After making known the results of the comparative analysis, I will create complex indices with the help of the principal components analysis (PCA), set out from both the absolute and relative indicators. By this, it will be possible to put the Hungarian regions in an unambiguous order on the basis of their R&D activities.

2. TERRITORIAL RANKS

The research and development activities of the Hungarian regions can be described with either absolute or relative indicators. I observe that the application of various indicators give opportunities for different explanation. According to Borsi-Telcs [6], the absolute indicators represent the counties as “weighted points” on the map of Hungarian R&D, whereas the relative indicators describe certain “competitiveness” and “effectiveness”. Furthermore, the absolute and relative statistics lead to different territorial ranks, therefore I will discuss the absolute and relative indicators in different parts of my study.

Territorial ranks by absolute indicators

There are different input and output indicators to feature the R&D performance and the most important are reachable by territorial units in the statistical reviews so it makes the research and development activity in the Hungarian counties (NUTS III.) and regions (NUTS II.) comparable.

Table 1
Absolute indicators of research and development, 2007

	Number of R&D units	Total R&D calculated staff number	Expenditure, million HUF	Research themes and developing tasks	Scientific publications
Central Hungary	1 374	16 252	158 761	13 681	22 497
Central Transdanubia	186	1 417	12 916	1 358	1 450
Western Transdanubia	216	1 246	14 819	1 900	2 058
Southern Transdanubia	246	1 066	6 072	1 198	2 990
Northern Hungary	173	1 155	8 373	1 815	2 278
Northern Great Plain	335	2 417	20 446	2 303	4 246
Southern Great Plain	310	2 401	18 983	2 426	3 428
Total	2 840	25 954	240 371	24 681	38 947

Source: Compiled by author from KSH

- R&D units are those places, where research and development are done as primary or secondary activity under national, educational or corporative bounds [9]. On the first place we can find *Central Hungary* with its 1 374 units which makes up 48% of the whole. The next one is *Northern Great Plain* (335 R&D units) and *Southern Great Plain* (310 R&D units). There are another two regions with more than 200 units in each: *Southern Transdanubia* and *Western Transdanubia*.

- Total R&D calculated staff number is the number of employed in R&D sector reflected to the full time jobs [9]. On the first place there is *Central Hungary* again with 16 252 researchers, 63% of the whole. The second is *Northern Hungary* (2 417 researchers) and then comes *Southern Great Plain* (2 401 researchers).
- The most important statistic of research and development activity is the expenditure of R&D units, or with other words sum of currents and capital expenditure coming from national or international sources as well [9]. *Budapest and Pest* county has the main dominance in this field as well, 65% of the expenditures are used here: In *Central Hungary* therefore in 2007 more than 158 billion HUF were spent on research and development while in *Northern Great Plain* it was more than 20 billion HUF, in *Southern Great Plain* it was about 19 billion HUF.
- Total number of research themes and developing tasks are registered goals at R&D units which tend to make new possible scientific-technological results [9]. Two years ago in *Central Hungary* there were 13 681 research themes, 55% of the whole. On the second place there was *Southern Great Plain* (2 426 research themes), and the third was *Northern Great Plain* (2 303 research themes).
- Total numbers of scientific publications are the written works of the researchers written either in Hungarian or in a foreign language: books, chapters, studies, and articles in learned journals [9]. The first place of *Central Hungary* is essential: there were 22 497 publications in 2007, 58% of the whole. The second is *Northern Great Plain* (4 246 publications) again and then *Southern Great Plain* (3 428 publications).

Territorial ranks by relative indicators

The comparison of the Hungarian regions is possible not only by absolute but relative indicators based on ranks as well. However these indicators are not available at the Hungarian statistical yearbooks, they can be determined by background calculations.

Table 2
Relative indicators of research and development, 2007

	R&D persons per capita	Expenditure as a percentage of GDP	Expenditure per R&D person, million HUF	Scientific publications per capita	Scientific publications per R&D person
Central Hungary	0,0056	0,0141	9,7687	0,0078	1,3843
Central Transdanubia	0,0013	0,0055	9,1153	0,0013	1,0233
Western Transdanubia	0,0012	0,0063	11,8933	0,0021	1,6517
Southern Transdanubia	0,0011	0,0039	5,6964	0,0031	2,8049
Northern Hungary	0,0009	0,0044	7,2492	0,0018	1,9723
Northern Great Plain	0,0016	0,0090	8,4592	0,0028	1,7567
Southern Great Plain	0,0018	0,0090	7,9063	0,0026	1,4277
Total	0,0026	0,0103	9,4665	0,0039	1,5006

Source: Compiled by author from KSH

- In the aspect of researchers per capita *Central Hungary* is the very first with its 5.6‰. This situation in *Southern Great Plain* is much worse, there are only 1.8 full time researchers per 1000 person. It is even worst in *Northern Great Plain* (1.6‰) but it is still in the top.
- Expenditure as a percentage of GDP is also a good indicator of the R&D competitiveness of the regions. Maybe it is not a surprise that *Central Hungary* is the first again with 1.41%. The next one is *Southern Great Plain* (0.90%) and than comes *Northern Great Plain* (0.90%).

- In the aspect of number of scientific publications per capita *Central Hungary* is the first with again 7.8 publications per capita in 2007. The other regions' "productivity" is less, like *Southern Transdanubia* (3.1‰) and *Northern Great Plain* (2.8‰). The front-rankers are followed by *Southern Great Plain* with two per mille of arrears. The other regions' lags can be considered much more serious.
- The situation is completely different with the number of scientific publications per researcher. On the first place there is *Southern Transdanubia*, with 2.8 publications per researcher in 2007. The researchers have eminent results in *Northern Hungary* (2.0), *Northern Great Plain* (1.8) and *Western Transdanubia* (1.7). *Central Hungary* in this rank has only the sixth place.
- In the area of expenditure per researcher *Western Transdanubia* is in the best position with its 11.89 million HUF. In this aspect *Central Hungary's* arrears is minimal, because they spent 9.76 million HUF in 2007. *Central Transdanubia* has only subtle arrears from this sum, where a researcher – in a figurative sense – could manage 9.11 million HUF.

3. TERRITORIAL RANK-OPTIMALIZATION WITH PRINCIPAL COMPONENT ANALYSIS

It is unambiguously clear from the analysis of county ranks, based on absolute and relative indicators, that the more indicators exist, the more ranks can be set up for describing the research and development activities of the Hungarian regions. After that, it seems a reasonable object to create a complex index, which contains the most possible pieces of information about the examined indicators. In other words, a complex index can explain the largest possible part from the standard deviation of the indicators.

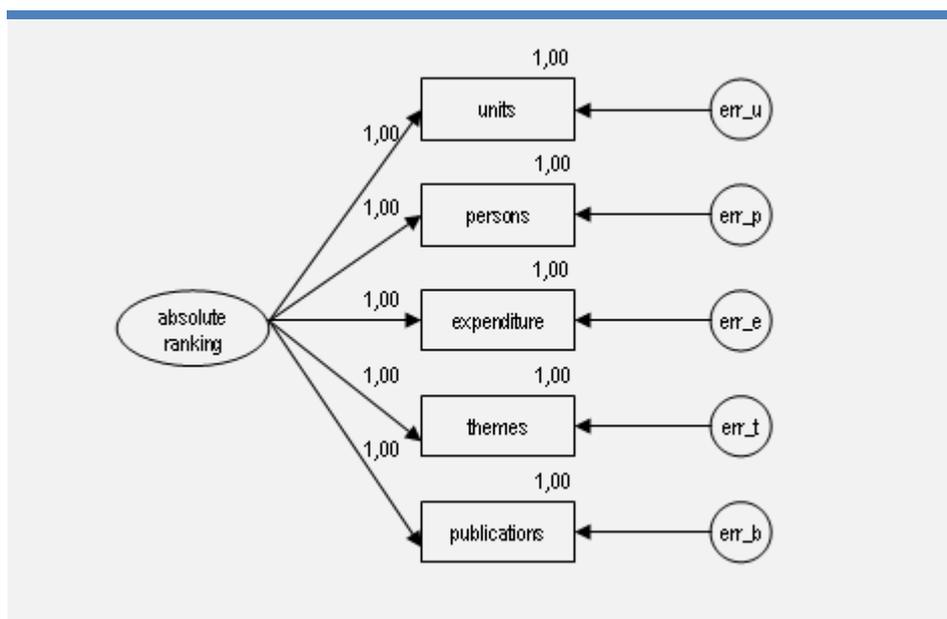
The previous task can be solved with principal component analysis, which is a special case of the explorative factor analysis [7]. Its primary purpose is the reduction of dimension number, in other words the reduction of variables, so that the least possible information can be lost about the statistical population and same conclusions can be made at the same time [8].

As the description of the R&D activity gives chance for analyzing absolute and relative indicators, it is worth completing the principal component analysis for both groups. I will explain the results accordingly on absolute indicators at first and then on relative ones as well.

Optimal territorial rank based on absolute indicators

The absolute indicators, which describe the R&D activities of the Hungarian regions, are strongly correlated with each other, as the value of KMO

(0.799) is middling and the hypothesis of the Bartlett's test of sphericity had to be rejected, too (Sig. 0.000).



Source: Compiled by author

Figure 1

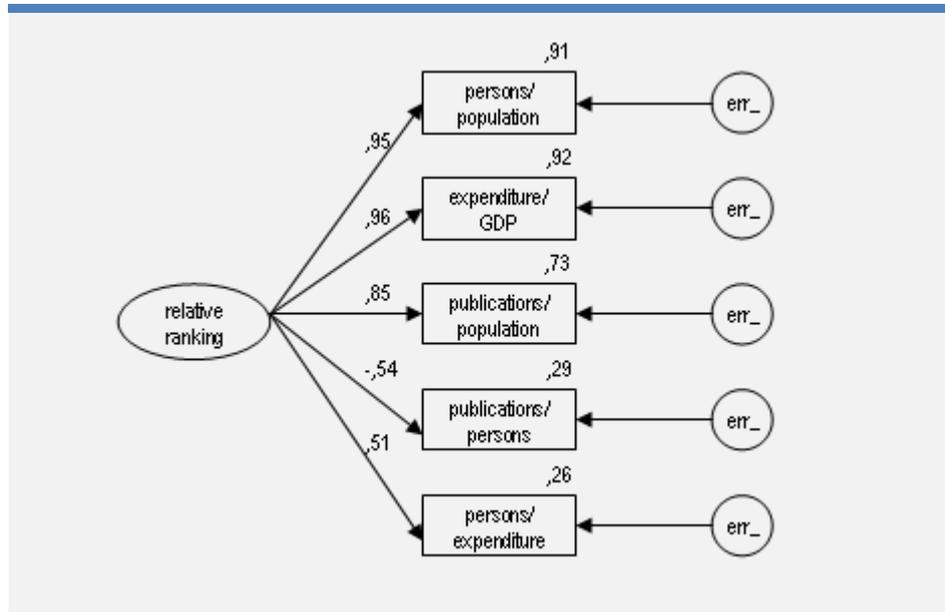
Principal component analysis of formed orders based on absolute indicators

The eigenvalue of the first principal component is 4.987, in other words, the 99.732% of the information kept by the five absolute indicators was successfully compressed in one variable. The simple linear correlation coefficients (factor weights) between the principal component and the absolute indicators are very large, all the five of it approaches one (numbers on the left arrows) just like the extraction communalities of the original variables (numbers above the right upper corner of the rectangles). All these mean that the absolute indicators used in the analysis count for a lot approximately the same weight at the creation of the principal component.

The principal component produced by this way corresponds to a complex index, with the help of which unambiguous rank can be formed on the basis of the R&D weight of the Hungarian regions. Indisputably, *Central Hungary* stands in the first place, as it was the first through all the absolute indicators. *Northern Hungary* takes the possession of the second place, and *Southern Great Plain* is the third. *Western Transdanubia* and *Southern Transdanubia* are right in the middle places of the regions. *Northern Hungary* and *Central Transdanubia* can be characterized with the smallest R&D weight.

Optimal territorial rank based on relative indicators

The correlation of relative indicators, which describes R&D activities, is unacceptable on the basis of KMO value (0.358), but according to the Bartlett's test of sphericity (Sig. 0.000) the original variables are not independent, so the principal component analysis has existence.



Source: Compiled by author

Figure 2

Principal component analysis of formed orders based on relative indicators

The value of the first principal component calculated with relative indicators is 3.113, namely the 62.266% of information, which is brought through original variables, was successfully compressed in one principal component. The factor weights except for the “scientific publications per researcher” and “expenditure per R&D persons” (0.51-0.54) are very high (0.85-0.96) also at this case, just like the last communalities of the relatives indexes (0.73-0.92), from among which the “scientific publications per researcher” and “expenditure per R&D persons” (0.26-0.29) are the odd one out, too. Consequently, these variables take part in the creation of the principal component of R&D “effectiveness” and “productivity” with lower weight than the other variables.

The complex index created by relative indicators defines an unambiguous rank among the regions in this case, too. The first place of *Central Hungary* is

no longer a question. *Southern Great Plain* stands in the second place and *Northern Great Plain* stands in the third. The following regions are right in the middle place: *Western Transdanubia* and *Central Transdanubia*. *Northern Hungary* and *Southern Transdanubia* have the largest lagging on the areas of the R&D “effectiveness” and “productivity”.

4. CONCLUSION

In what follows, I will summarize the most important results and conclusions of my analysis, which is connected with the R&D activities of the Hungarian regions.

- Analyzing the absolute indicators of research and development (R&D units, total R&D calculated staff number, expenditure in R&D units, Total number of research themes and developing tasks, total number of scientific publications), there is no doubt about the first place of *Central Hungary*, however the further sequence changes from indicator to indicator.
- In the case of the relative indicators (researchers per capita, R&D expenditure as a percentage of GDP, number of scientific publications per capita, number of scientific publications per researcher, expenditure per researcher) the situation is very similar with one exception: the number of scientific publications per capita *Central Hungary* stand only in the end of the rank.
- The principal component analysis is very good for condensing the absolute indicators into one complex index, without any important loss of information (0.268%). Then an opportunity is offered to line up the Hungarian regions by their R&D weights: 1. *Central Hungary*, 2. *Northern Great Plain*, 3. *Southern Great Plain*.
- For the reduction of data, the principal analysis can also be applied in the case of relative indicators, although here the loss of information (37.74%) can be considered more serious. The final rank on the areas of “effectiveness”, “productivity” principal component of the R&D is obvious as well: 1. *Central Hungary*, 2. *Southern Great Plain*, 3. *Northern Great Plain*.

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COMPLEX ECONOMIC MODELS AND PATHDEPENDENCE

Gábor Petró

assistant professor

Institute of Economic Theory, University of Miskolc

1. SUMMARY

Economic theories make huge effort to find general principles. We have to optimizing our scope of inquiring or models. I emphasize some suggestions for building models of complex systems. Getting rid of generality of theory We can build complex models by using simple elements and rules. If we use associations bravely, then we can get closer to empirical data. This method will limit the scope of the model but it can be simulated with computers. Using the theory of complex systems and automata and algorithms we can build realistic models. Huge number of these models shows pathdependent behaviour. I show a possible way to represent this.

2. INTRODUCTION

The ordinary economic theories apply generalizing principles. Theories tackle the economic phenomena with formal mathematical tools. They build strongholds on ideals – or axioms. The ordinary theoretical systems and models behave in according to the axioms and the formal mathematical logic. So this behaviour is a consequence of the building of the theory. It is well-formularized and it is predictable. The system tends to the same – or strongly similar – equilibrium along the same – or strongly similar – trajectories, end-states. The systems around us do not behave like this, so the ordinary economic theories are vulnerable. Simple tools can build models which have complex behaviour.

3. THE METHOD: SYSTEM THEORY AND COMPLEXITY

The system theory turns the attention to sets of huge number of constituents. We can describe in similar manner these constituents. The constituents are linked together with binary connections. So along these feedbacks and forward loops the constituents can interact with the others, and build systems. In these systems can be identified those processes which are absent – because of axioms, too – in an ordinary economic theory. Because of this connections and interactions the system behaviour is irreversible and sensitive to the initial state. Along the path-dependencies the systems generally tend to other equilibrium blots in the state-space, in case of existing of these blots. These blots are certain states or sets of states.

The economic and societal systems are like these. Their behaviours are unpredictable and characterized as complicated and/or complex systems. In according to the sets of empirical data these systems have neither ordered nor chaotic behaviours. They exist and work somewhere among the ordered and chaotic states. So the *concept of complexity* let be the balancing between the ordered and chaotic states.

Using simple principle we can build systems which have complex behaviour. A good example for this is the cellular automaton. It consists of only black and white points, cells. The state of a cell is his colour. The state depends on the neighbours in according to the used rules. The depending connections are like rules which give the directive for making the next row. When we use this type of modelling, then the next step is the usage of creative associations. We have to find connections among the graphical image and the sets of empirical data. We can see four cell-forming rules – how can derivate the next line from the former one – at the left part of the picture 1. The picture of behaviour – from a random initial state – of this automaton is at the centre of the picture. Well, it is an example for the slight border for the chaotic and complex behaviour, because it can be both. The diagram of distribution of a colour in a line is at the right side of the picture. The shape of the distribution is similar to an empirical observation, to a trend of prices of a commodity, is not it?



Source: Stephen Wolfram, 2002, p. 432.

Figure 1

A cellular automaton's rules, the behaviour and the distribution of a colour in lines

Well, this method includes own disadvantages, too. The efficacy of drawing conclusions – of the results – depends on the creativity and experiences of the observer. More speculations do not mean better results. The results and interpretations of the behaviour of the system are subjective, so falsifiable. It gives a new way for modelling, but as against the formal mathematical description it has no formal tools and it is similar to a “try and error” method of modelling.

The cellular automaton give an example for building complex models with from simplicity. But to seek for an automaton which gives an appropriately derived result from the picture of its complex behaviour which is similar to a set of empirical data is too speculative. I want to get closer to these data to maintain a stronger connection between them and the results of the complex model.

4. A MODEL AND ITS RESULTS

If we change the cells of cellular automata with algorithms we can approach the model to the empirical world. Each economic actor of a population in the model is an algorithm with variables. Let us imagine a market where the members of the population can trade with only one commodity. In the sake of simplicity, the members, the actors are characterized among some simple basic feature (x_i, y_i, \dots) , but they use similar or the same schemata of decision making process. The members are connected along binary links in the web of the population. The actual state of an actor, the success of former decisions and the interactions on the connections can experience influences on actual decisions of this certain actor.

The values of characters of each actor can be filled up randomly or with the same values, or in according to some group-forming principle – for example in according to sets of Hungarian statistical data of society. An actor possesses with wealth, friendships and an initial vector of weights for the decision-making process.

The set of decision maker strategies is the same for each actor. These strategies are simple, they make the actor to decide randomly or taking consideration – for example – average values. The frequency of making the decisions is influenced by the actual wealth-position, but the usage of concrete strategy depends on the actual weights of the actor. The weights change in according to the actor's and his friends' successiveness. We mentioned above the general processes of a complex system. The possible random decision making process, and the option to change among the few decision making strategies in according to the random generator of the computer and the weight vector of the actor ensures the irreversibility. As the real economic actor, who evaluates the alternatives and chooses the most appropriate – in according to his risk avoiding or risk bearing attitudes – in front of the gaining and yielding aim, the simulated actor can change his mind and choose. The former decisions will influence the later ones. The simulated models run generally different trajectories in the state space of the model. Irreversibility brings the path-dependency, too.

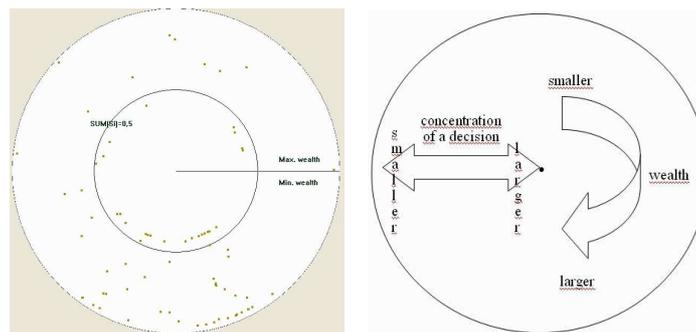
The adaptation is firstly the diffusion of successful strategies among the population in this model. But secondly the adaptation is the invention of new combinations of decision making strategies, as well, to find new ways for gaining against the others. A widespread strategy which dominates the used decisions can not make so huge yield.

The population needs the diversity. Diversity comes from the usage of random generator when decision is being made, and comes from the random changing – as a metaphor for mutations – in the friendship connections, or comes from the random birth or death of an actor.

The selection is the diffusion force. The successful strategies gain weights, the successful actors gain yield. The unsuccessful strategies or actors fall out from the model. There are only few state variables, so the limited number of possible combinations of them brings the existence of the sub- and supracriticality. Only a limited number of actors can be. The actors can work together among the adaptation and they can form some group. It is the process of structural deepening.

So the behaviour of the actors and of the population is irreversible and path-dependent in the time. The behaviour of the population is the changes in the character values or states of members. There are actor-level character and population-level character, as well. These connections can be seen in the picture 3. Random changes in the character-values of an actor ensure the heterogeneity in the population, and it can diffuse along the binary connections if the changes are viable, so successful. The more homogeneous population makes the decisions more similar, thus less productive. So the diversity is a need of the population.

We can form groups in according to some character-values, as we can see the “successfulness circle” in the picture 2. The used mix of strategies and luck – or friendships – makes a huge influence on the actor’s fortune, so the group forming principle is the concentration of strategy-weights. The value of strategy-weight make the points of actors are in a certain distance from the centre of the circle, and the distance in degrees from the line of 0 degree is the wealth of the actor.



Source: Me

Figure 2

The “successfulness circle” which displays the actors of the population

The points are the actors and their actual positions. The picture is made of a certain moment in the simulation. We can see that there is not so big difference among the “concentrated” (far from the centre), the “balanced” (close to the centre) and the “mixed” actor-groups. There “concentrated” and the “balanced” groups consist of a bit more member than the “mixed” group. There

are poor and rich actors in each group, as well. But it is a strongly subjective interpretation of the result of simulations.

The behaviour of the system depends on the initial distribution, but the actual position of a certain actor at a certain moment is unpredictable because of the complex characteristic of behaviour of the system. So it is the pathdependent behaviour.

5. CONSEQUENCES, RECOMMENDATIONS

The main aim of economic theories to find models which can explain – even predict – the processes of the empirical world. To use formal tools, as mathematics, is a good, but not the unique, way of doing this.

The combination of system theory and the concept of complexity using simple elements as building blocks can give appropriate tools for building complex models. These models are dynamical, irreversible, path-dependent, have heterogeneous constituents, have the absence of fullness, have increasing return to scale, have the possibility of multiple equilibrium. The system theory and the concept of complexity – which was recommended in this study – make the scope of economic theories wider. The efficacy of a complex system is in the complexity itself.

Hardly arguable the subjective steps of building of these models, of making the associations, of understanding the results and of drawing the consequences from the simulations.

I emphasize the usage of simple constituents, blocks or rules and principles along the building of a model. A model built on simple constituents can have complex behaviour. The computer simulations can show us this behaviour in a lot of aspects.

Perceiving and identifying the processes and the behaviour of a model it is necessary to use bravely the creative associations. Even in the case of surprising connections among the parameter values and empirical data. Well, the usage of models built in this recommended way is accompanied with its limits, barriers, too.

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