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Sectoral structure of Slovak industry: A widening of the backwardness or a chance for the future

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SECTORAL STRUCTURE OF SLOVAK INDUSTRY: A WIDENING OF THE
BACKWARDNESS OR A CHANCE FOR THE FUTURE

38th Congress of the European Regional Science Association
Europe Quo Vadis? - Regional Questions at the Turn of the Century

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A main goal of my paper is to give a perspective of a future position of the Slovak industry in the coming information-age society. Disadvantageous sectoral structure is a main problem but there is also a chance for the better future development in the human potential (knowledge as well as cheap labour), established infrastructure and other developmental possibilities. In the paper I deal some theoretical (global world-economy, long waves of the world economy, product life cycles) as well as experiential (new international division of labour, Slovak cultural preconditions, experiences of similar newly industrialized countries...) preconditions inevitable for the optimal (sectoral) structure of Slovakian economy in a coming information age.

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Introduction

This article deals with possibilities of transformed regional geography to understand perspectives of Slovak industry in contexts of both globalized world-economy and future information society. Transformed (or new) regional geography is a rapidly changing discipline in last two decades. Originally idiographic (describing) discipline is subject to challenge to exactize. As a result transformed traditional regional geography as well as originated new (transformed, reconstructed) regional geography. For the brief view on this topic see for example works (Entrikin, Brunn 1989, Gilbert 1988, Hart 1982, Johnston, Hauer, Hoekveld 1990, Kasala 1996a and others). Research problems and objects of study of regional geography borrowed other disciplines - among others regional science. However, field of study, approach and methods both of them are different.

Regional science is profiled as mostly technocratic discipline. Object of its study is society as it is in the case of regional geography, too. Regional geography has but wider range of view. Analytic character of regional science could be compared with more synthetic character of regional geography. Our contemporary world is very sophisticated and growingly accelerated and interrelated. Shifts from analytical methods towards syntheses, contextual methods and qualitative methods are unquestionable. There is also an opportunity for regional science to borrow experiences of social sciences (and regional geography) to be less technocratic, analytic, quantitative and "pure rational" in the sense of contemporary rationalism embodied in prevailing paradigm (Enlightenment's belief in our unlimited abilities to know, to understand and to change the world).

Changing character of our dynamic and interrelated world is an opportunity also for myself as regional geographer. An understanding of the world, its structure, relations and dynamism is an inevitable precondition for an understanding certain region. An *understanding* certain region is an inevitable precondition for searching its problems, planning it and proposing its developmental perspectives. Thus my goal in this article is not to give complete information about sectoral structure of Slovak industry but to see the sectoral structure in contexts of some theoretical conceptions, experiences of similar economies and perspectives in the future age of information society.

Theoretical backgrounds

Economy of Slovak Republic (and other postcommunist countries) is often called as transitional economy. Transition from centrally planned economy towards market economy brings many problems and has many specific features and expressions. Privatization, restructuralization, banking and finance sector establishment, development of new-type institutions, social structures and relations creation, development of small businesses, technological development, removing of ecological consequences of heavy economy, new-type qualifications and re-qualifications... Many problems are principally different from those in established capitalist economies and many are specific for Slovak Republic. From points of view of Slovak disadvantageous sectoral structure is inevitable to start with theories of both product and world-economy development.

Long waves of the world-economy

Economy of the world (or recently interconnected world-economy) has fundamentally cyclical character. Very known are Marxist interpretations (historical materialism), business cycles, Schumpeter's clusters of innovations as well as Kondratieff's long waves of economic development. The last theory is in geography and other social sciences very popular in last two decades.

Cycles of the world-economy are conditioned predominantly by clusters of innovations (Schumpeter's contribution to the theory). The first industrial revolution began in England at the end of 18. century and was accompanied by textiles, shipbuilding and coal and iron industries. These sectors may be considered at the beginning of 19. century as "high-technology industries" (HTI's). Every time of the economic history had its leading industries (that is its own "HTI's") and its leading spaces - states or areas (see later discussed Wallerstein's world-system analysis). Mass production of certain products typical for certain time (or long wave of the world-economy) results into price decline and overproduction. Penetration of the world market by these "old products" (see theories of products' life cycles) results into culmination of efforts to search new products. Phases of world-economy declines and crises are thus replaced by searching new technologies and innovations. Crises of the world-economy are thus substituted by cycles of successful finding of new fundamental innovations and their clusters. The development has a

character of periodical cycles - long waves of the world-economy. Author of the long-waves theory, Russian economist Kondratieff and his followers (Mandel 1980 and others) have identified four long waves of the world-economy and Peter Hall has joined the fifth one (Hall 1985). P. Hall characterizes present fourth long wave (1948-2000) as follows:

Key innovations: transistor, computer, computer-based information technologies;

Key industries: electronics, computers, communications, space industry, production services;

Organization of manufacturing: mixture of large "fordist" and small companies (on the subcontract basis), transnational corporations;

Work: bipolar (that is: lack of middle class);

Geography: suburbanization, de-urbanization, new industrial regions;

International context: American hegemony, Japan challenge, growth of newly industrialized countries, new international division of labour;

Historical context: cold war, space race, "global village", mass consumption;

Role of the state: welfare state, warfare state, organized research and development.

The fifth long wave of the world-economy arises by my opinion in the second half of the 1990's and it can be identified with information society. Wider societal changes are expressed in (or more probably are conditioned by) fundamental economic changes. Industrial economy is dependent on abundance of capital, postindustrial economy depends on information. Crucial sectors thus are those "information-based" which are aimed at production, processing and distribution of information - computers (and their parts and applications including software industry), telecommunications and telematics. The last-named industry is at the present times (and for the information-type economy and society) the most important. Advances and structural changes are thus conditioned above all by the improvements of information technologies, primarily means of distribution and transfer of information - telecommunication satellites (transmission of telephone talks and TV and radio broadcasting), digital and mobile phones, global computer nets (internet), digital compressed television (and resulting both wider choice of programmes and their specialization) and so on. There are many important social changes - see works of John Naisbitt (Naisbitt 1982, Naisbitt, Aburdene 1992). Naisbitt's megatrends (social, cultural, economic shifts as well as changes of awareness, attitudes and the whole superparadigm of our civilization), Toffler's third wave (Toffler 1981), Bell's postindustrial society (Bell 1973)

and other theories analyse social and cultural changes. For us are important, but space shortage is an imperative for me to concentrate to "pure economy". Multiple choice, free access to information (and resulting less restricted chances for an individual) and other social changes are immediately connected with economic changes.

"Global restructuralization" of the fourth- and fifth-wave world-economy resulted also into spatial re-arrangements. Continuous decline of the American economy in 1960's-1980's was in 1990's stopped and turned into one-decade ongoing growth. A reverse trend is typical for present Japan and Europe has prevailing problems, too. The Asian newly industrialized countries (NIC's) seem to be winners. The case of NIC's development is thus analyzed later.

Product (and profit) life cycles

Cyclical character of changes is typical also for products. Raymond Vernon (Vernon 1966) is author of product life-cycle theory. Every product (and in a wide sense every sector of industry) passes through stages in its life and changes its spatial arrangement, corporate concentration, employment and skills, and so on. An American geographer Ann Markusen transforms the theory into "profit cycles". Her Marxist conception gives five profit cycles (Markusen 1985); each of them has its own geography:

1. Zero profit - concentration;
2. Superprofit - agglomeration;
3. Normal profit - dispersion;
4. Normal plus (or normal minus profit) - relocation;
5. Negative profit - abandonment.

The nature of Vernon's theory may be included in its four original life cycles:

1. Innovation stage with important position of new product design and commercialization. There are many small and innovative firms producing small series of products. Firms with qualified and well paid workers are localized in several original nuclei which have an advantage of creative environment and market changes information.
2. Penetration stage with market penetration of new products and mass production, at most new jobs. Growing prices of both land and labour and environment degradation are decisive forces to search new locations on the periphery of original centres.
3. Market saturation in the conditions of growing competition leading to cost reducing,

profit oligopolizing, output restriction, employment lowering, market division agreements. Spatial decentralization accelerate, not only at interregional, but also at international level.

4. Rationalization with strong competitive pressures at product prices, rationalization, employment lowering and bankruptcies. Ongoing corporate concentration creates large transnational corporations with tendencies to spatial recentralization to several (frequently foreign) locations.

The most problematic industries seems to be those connected with first industrial revolution. In this sense is important to separate high technology and low technology (and perhaps middle technology) industries. Low technology industries (LTI's) are those of first industrial revolution - textiles, coal, steel and shipbuilding. They are produced in large corporations, in several locations which operate frequently in Third world. "(First) industrial revolution areas" as Ruhr, Lorraine, southern parts of Appalachian region all have serious economic and social problems, unemployment, lack of investment and so on. Problems of restructuring are emphasized also with Checkland's Upas tree effect. In a shadow of old industries is impossible to restructure (a case of Glasgow as opposite to Birmingham). Contrasting to unsuccessful old industrial areas appear new industrial spaces which are connected with high-tech industries. There are several new (macro)regions which originate as a result of "spatial (economic) shifts", for example sunbelt in the USA (as a result of snowbelt - sunbelt shift - shift of population and economic activity from old manufacturing triangle to some southern parts of the USA as California, Florida, Texas and southern parts of Mountain region), British sunbelt (or M4 Growth Corridor with an axis London - Bristol), or not-so-strictly HTI's spaces as Catalunya, Lombardia, Baden-Württemberg as well as Asian NIC's.

Global world-economy

One of the most fundamental characteristic features of recent world economy is its "world-economy" character. Internationalization of the economy and society a gradual process. Trade relations were rare before technical revolution of 15th century and resulting "collapsing the world space", conditioned by advances in navigation. Rapidly growing internationalization enables Immanuel Wallerstein (Wallerstein 1974) to apply a new concept world-system. His at the present times one of the most popular "discipline" called world-system analysis. Wallerstein's world-economy is dated from "long sixteenth century" (1450-1640). Intensified inner relations

conditioned growing interdependency, complexity and spatial extension of the world-economy. In Wallerstein terms world-economy passed through its stages of development up to present capitalist world-economy. Capitalist world-economy is characterized as follows:

1. There is single world market which logic enables economic decisions.
2. There is multiple state system; position of individual states is uneven (based on uneven exchange) and global world unevenness may result sometimes into hegemony and dominance of one state (USA in recent times).
3. There is three-layer structure of the system: core, periphery and semiperiphery. System is very dynamic with semiperiphery as the most dynamic layer - from the periphery into the core pass Asian NIC's with open, dynamic and flexible economies.

Internationalized world economy exists few centuries. Present economy, however is *globalized world-economy*, interconnected, interdependent and sophisticated in its nature. Some of these theses will be specified in parts dedicated to Slovak economy and its sectoral structure.

Sectoral structure of Slovak industry

Basic character of Slovak industries was laid in the times of socialistic industrialization. Slovakia was a part of former Austrian-Hungarian empire as a component of its eastern part - Hungary. Hungary obtained an equal status in Austria, but it give not independence to other Hungarian nations among them the Slovaks. Slovakia - as opposite to Czechia - remained unindustrialized country following the exhaustion of its resources (precious metals). As a result of World War I and uneven position and dependence status of Czechia and Slovakia was established a new independent state - Czechoslovakia. Slovakian part of the state retained its mostly agrarian character in contradiction to western Czechia with developing industries. Slovakia continued its semi-colonial uneven status, not in the sense of sweat exploitation and basically unequal conditions, but above all in the sense of continued disadvantageous structure of Slovak economy. Agrarian status had (and up to the present day has) its expression also in conservative and rural character of important part of the Slovak society. Thus less urbanized country in the strictly economic sense forms up to now Upas tree effect for modern industries.

Politics of Czechia towards Slovakia at the time between world wars seems to be for a large part of present Slovak society as an exploiting one. Czech employees compensate for lack of

Slovakian professionals, teachers, physicians and other specialists, but there were in Slovakia also many Czech gendarmes. Lack of domestic (Slovak) capital for investment was another problem.

Underdeveloped Slovakia attained real development of its industry after World War II. Many specificities of socialist industrialization is up to the present day brake of the modern industrial development on the basis of growth of high-tech industries. Socialist industrialization was aimed to two basic goals: to secure key industries and to build diversified industrial structure. Import substitution politics in the conditions of closed economy and society located here primarily raw- and environment-demanding sectors plus military industries. Slovak industrial structure as a result was dominated by large plants producing steel, chemicals, metals and foods; products were (and are) low quality and low competitive. Flexibility of these plants and concerns was lowered by centrally planned economy and their managements. Inefficiency as a result of a poor motivation, low level of productivity, bad locations of the plants... There are many problems in Slovak industries and some of them I deal in the last part of my article.

International experiences of newly industrialized countries

Conditions of present and future development of Slovak industry are comparable with those of some other relatively problematic, transitional, or underdeveloped countries. Some of them have similar problems as economy of Slovak Republic and for us are the most attractive those with similar size, openness and structure as well as with similar cultural preconditions and conditions of the world-economy. From this point of view are for economic development of Slovak Republic valuable experiences of Asian NIC's (which are well prepared for the information society), and small countries from European cultural environment as Ireland and Israel equally developing their information-economy type industries.

One of the first examples of new industrial spaces, characterized by high portion of high-tech industries, is Silicon Valley. "Silicon Valley story" (see for example Saxenian 1984, 1985, or special Silicon Valley issue of Business Week, August 25, 1997). Spin-offs and new businesses in the valley - originally Santa Clara County and at present an area with its centre in San Jose - created the most creative environment in the world. A crisis in the 1980's (competition of other regions, congestion and traffic jam, ecological accidents) was overcome. One third of the most influential computer companies are based in Silicon Valley (PC Magazine, July 1997). Success of

this story is conditioned by creative environment, cultural and ideational melting pot, hardworking environment, and agglomeration effect attracting investment. Fortune firms are those connected with information technologies sectors: telecommunications, internet and intranet and digital compression and transmission of information, video and audio as well as traditional high-tech sectors - computers, electronics, biotechnology, aircraft and space industries, precise and optical engineering, new materials and sources of energy.

Asian newly industrialized countries (from rich sources see, for example, Auty 1995) started their industrialization in the late 1950's. The first Asian NIC's followed pattern of Japan's development four tigers (or dragons): South Korea, Taiwan, Hongkong and Singapore. Steady growth of their economies without interruption is one of the most important signs of the new international division of labour and - in addition to China, an economic miracle of the present day times - contribute to global economic shifts from North Atlantic area (symbolized by NATO as an area of northwestern Europe and Manufacturing triangle of the USA) to Pacific (symbolized by APEC as an area of Pacific coast of North America, Japan, Asian NIC's and China and perspective also southeastern Asia and Australia). Cultural preconditions of this area are more specific than other areas as well as conditions of the world-economy. 1960's-1970's - a time of NIC's boom - were years of investment activity, lesser international competition, lesser input prices (costs of labour, raws and other sources) and so on. More important for Slovak transitional economy are, however, stages of economic development. Original periods of import substitution and establishment of the key industries were changed by assembly operations (electronics, automobiles, computers) and at a present times by on own research and development-based high-tech industries.

Europe - as a region with similar cultural preconditions as Slovakia - witnessed a new-type industrialization after Oil shock in the late 1970's. Industrialization affected European periphery and Spain as one of the first countries (Naylon 1992). Long-term prosperity of the world-economy conditioned in first period from the beginning of the 1960's boom of investment and resulting change from the rural-agrarian to urban-industrial country in the first 15 years. Second period after the Oil and investment crisis (and Japan's and NIC's' competition) of 1975-1985 were overcome by sectoral restructuralization (growth of information technologies - microelectronics, telematics, information processing) accompanied by spatial shifts - decline of old industrial

spaces (Basque regions, Cantabria, Asturia) and increase of new industrial spaces (Catalunya, Valencia, Aragon and tourism-based Canarias and Baleares).

In comparison to Slovakia is Spain a large country with large and diversified economy and purchasing power. From this point of view is appropriate to give another example. Ireland has a small economy, similarly as in the case of Slovakia with an inevitability to be export-oriented. Irish Republic was twenty years ago an idyllic country with an untouched nature, underdeveloped economy and high emigration. Development of assembly operations (especially microchips; see for example Sayer 1986) were in the first period met with mistrust among both Irish and experts. However, similarly as in the case of Asian NIC's, this investment started an period of further rapid development: they laid the foundations of tradition, attracted investment and changed psychology of Irish population. Irish Republic is at the present time a country with modern industrial structure and Microsoft's choice of localization of Paneuropean version of Windows (in spite of diffusion of Irish pubs, however, at the time of rapidly growing interest about Celtic culture, mysticism, music, and even search of European identity in Celtic past roots, increase nostalgic cries for *real* Irish culture). Shift from assembly operations to installations of microprocessors is typical for Taiwan, Irish Republic and others and is an inspiration for postcommunist countries.

The last example is Israel which is part of European cultural tradition with unique symbiosis of individualism and sense for community (kibuts as well as Jews in the world) which may be an inspiration for Slovakia and its economy in information age. Israeli's economy witnessed through its history different stages. The most important export articles originally were tropical fruits as oranges, growing foreign competition caused a reorientation towards diamond industries. A real turning point leading to Israeli's fast development was high-tech reorientation of its economy, first of all software companies startups. Software from Israel belongs to the most successful, some of the greatest companies locate their activities in the country. By the way, Slovakian (and Czech) programmers belong to the best in the world (results of the international high school competitions). Results of IT's production and sales but are not favourable. Backwardness of European information technologies in comparison with the USA is the same as the backwardness of those of Slovakia in comparison with Europe.

Slovak industries in information society

Slovak (and postcommunist countries) backwardness is deep, but not insurmountable. Some of the positive preconditions were already mentioned. Firstly I would like to summarize them (including the negative preconditions) and then I will give some proposals of (economic) policy and some critique of present Slovakian economic praxis in the light both future information society and outlined theoretical schemes.

1. Historical conditions - as I already mentioned Slovak economic structure is disadvantageous as a result of relative backwardness in comparison to Czechia in a prewar (before the World War II) period and as a result of import substitution politics during the socialist industrialization. Socialist era was the most typical example of industrial thinking and resulted in the gigantismic economy of mass production, belief in abilities to forecast and to plan. Vestiges of this mode of thinking are very strong up to present day (decision makers, managers, public opinion "influencers", teachers).
2. Cultural conditions - in the previous text I mentioned conservatism (that is less adaptability and new ideas acceptance) and maybe also sense for the collective. Collective and cooperative thinking is very important in the information-type economy. Sophisticated and creative tasks will require not pure individualistic approaches but voluntary cooperation. Mainly the first contact with an "incomer" (investor or manager) is confronted with Slovak openness of inner self, hospitality, warmth, sensibility, communicability, industriousness; less positive is, however, modesty, preferring of stability and certainty, closeness towards aliens and xenophobia as an extreme. Very positive conditions inevitable for the future society's needs are preconditions for creativity, i. e. sensibility, "positive irrationality" (intuitiveness, fantasy, imagination), impulsiveness but also simplification, anxiety to rely on "external control and need to motivate and activate the employees because of less inner activity as a limiting factor. Cultural (or socio-cultural problem) is also duality of the Slovak society, mainly urban-rural gap.
3. Political and economic conditions and inevitable measures - I would like to give a proposal for optimizing sectoral structure of Slovak industry in brief. In addition to right macroeconomic policy, structural policy (transparency of privatization, bankruptcy and monopoly laws), position of the state in the economy (including taxes lowering -

the state uses up one half of created GDP; in Asian NIC's it is 15-25%) and so on. Result of disproportionate position of the state in the economy is lack of investment. The situation is impeded by many inner (technological, marketing and management backwardness, social and ecological demands, wrong economic policies) and outer (growing international competitiveness and protectionism, careful investment strategies) conditions hinder the Slovak economy to develop successfully. Possibilities of future successful development in the information-age world-economy are besides other factors conditioned by (Kasala 1996b, partially adapted):

- A. Deliberating economic policy with clearly stated and practically secured priorities, including preferentially developed sectors - high-tech industries and above all information technologies. It is inevitable to search ways to attract HTI's by the use of different measures - tax reliefs and holidays, providing least costly equipments, infrastructure (or plants/firms) and so on - these measures attracted foreign investment are by the Slovak government already applied. Other measures may be used to support domestic businesses, above all small and middle entrepreneurs (this support declares the government only formally). Slovak government realizes no real policy aimed to IT's priority. US and EU information superhighway commissions, G7 Group in its Bandemann reports as well as American president through his commission and advisors are permanently influencing position of their countries. Former Czech prime minister V. Klaus was paradoxically known as an enemy of internet, but after his fall arisen in Parliament IT commission. Attitude of Slovakia is typical - refusing to pay VAT to Microsoft, Slovakia as a minimal requirement for providing all the Microsoft products to Slovak schools.
- B. Inevitable condition for optimal economic development is balanced and diversified sectoral structure of Slovak industry. Present disadvantageous structure with high proportion of heavy chemistry, steel, declining military industries is worsened by lack of raw materials (raw-intensive is one half of industrial production of the country, East Slovakian Ironworks (VSŽ) forms one tenth and chemical company Slovnaft one twentieth of Slovak export). There is a necessary task to modernize industries, but in the same time also to diversify them, that is to strengthen positions of some middle-technology industries including assembly operations. Very

important may be improvement of position of car assembly (Volkswagen Bratislava is one of the most successful plants of the VW Group and became the second largest exporter; VW is in the same time one of the largest investor in Slovakia) and electronics (Sony and some other foreign companies manifested their interests). Both these sectors but have more problematic plants (Považské strojárne, OTF).

C. Diversification of industries and support HTI's and IT's must go hand in hand with lowering of old industrial sectors (as I mentioned above) and removing of old industrial thinking. "Captains" of Slovak industry behave similarly as those in 19th century. The main goal is for them to become wealthy, to eliminate competition, to be number one not only in the industry, but in the whole society. Typical example in this sense is East Slovakian Ironworks. Management of the corporation (in spite of lack of investment) buys foreign steel plants (East Germany, Hungary, USA), football teams, media and (sometimes illegally) banks, all with a substantial support of the central government. Conservation of this disadvantageous sectoral structure, however, is connected with world-economy and product life cycles. Steel as an old industry is produced mainly in developing countries (South Korea, Brazil) and in huge steel combines. The second of them are new, technologically advanced and located on the coasts of the United Kingdom, Italy, Spain,... - where are low transport costs. These European producers have itself serious problems with declining metallurgy and thus they are protected by their own governments (European Union protects them by import quotas). Probable extension of EU (Czech Republic, Poland, Hungary) will mean for the Slovak exporter further lowering of export possibilities.

D. Real status of the economy is a result of economic policy. In this sense I would emphasize above all export-oriented policy and regional economic policy attracted investment. Proexport policy is effective measure of the state which is carried out by marketing, information services, propagation activities, etc. Slovak Information Agency was established for the sake of positive information about Slovakia abroad. Activity of the agency was closed with the misappropriation of 3 mil. USD. Society for the export credits insurance is almost non-functioning and the whole export policy has rather antiimport than proexport character. Experiences of another areas

and countries are saying us more about acts to attract investment and other regional political measures. Favourable environment and appropriate measures are able to attract into region or place capital, Slovakia is but absolutely centralized state.

Regional policy raised Wales county Clwyd in the late 1980's. An old industrial space suffered at most after was closed the last steel plant down (1980). In the late 1980's were established technological park, specialized high schools and into the area were transferred technologies. In the middle of the 1990's was Clwyd one of the most dynamic British regions. Another example of successful development of an "Upas tree area" is Pittsburgh. Steel city was after deep economic and social problems transformed and in Fortune's top cities most attractive for the businessmen reached the fourth place.

E. Modernization and informatization of economy bring a new geography, new spatial patterns and changing spatial relations. Fortunes and losses of individual regions alternate, but "the most powerful" regions remain almost unchanging during relatively long periods (at the present days the time but shorten to few decades). There are also changing position of infrastructure and geographic situation. Implosion of space conditioned by communication revolution enables interactive exchange of information in the real time. This factor in addition to homeworking enables decentralization of information-age economy. Changing task of infrastructure maybe deliver us from an inevitability of highway building, however we have rests in a quality of our analog telephone net, speed of our access to internet and in digital television. Changing sense of geographical situation is saying us that we must forget on our ideas of a bridge between East and West; our advantage thus is not geographical and geopolitical situation, but a knowledge of language, culture, and national mentality.

F. From the point of view of geography and geoeconomical pattern in Slovakia seems to be optimal polarizational development, as in the sectoral sense (high-tech industries and above all information technologies as poles of the growth) as in the regional sense. Thus Bratislava is the most important growth pole, Košice and perhaps another cities - regional centres - are second rank growth poles. Advantages of Bratislava are obvious: educational and research and development potential,

qualified labour forces, creative environment, relatively sufficient foreign investment, proximity to Vienna and perhaps Budapest (to both Austria and Hungary respectively). Perspectives of Bratislava in the future were evaluated by several foreign studies, one of them placed Bratislava and its vicinity at the top of Europe.

G. Bratislava is (in spite of efforts of some of the political leaders) administrative capital and intellectual centre of the state as well as centre of decision making. For the fortunes in the future society is inevitable (perhaps more than whatever) to develop proper educational system as well as research and development, intellectually, institutionally and also by financing it. Universal character of general (basic and high-school) in Slovakia is from the needs of information society appropriate model, there is but a need to transform (and to support) universities - that is not to establish new ones, but to improve a quality, to heighten use of information technologies and courses of wider orientation, to motivate students towards their greater activity, etc.

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