CHAPTER 22. HUMAN CAPITAL DEVELOPMENT AS A TOOL FOR MANAGING STRUCTURAL CHANGES - SECONDARY EDUCATION VS. STRUCTURAL CHANGE[1]

Jovan ZUBOVIĆ[2]

Abstract:

Structural change is a phenomenon that is experienced as a result of changes that are affecting economic and social environment in a certain country. In 2000 Serbia has entered into a long period of economic transition. Since, it has gone through a harsh economic structural change. Following the three sectors split of the economy, in this chapter it has been presented through what kind of structural change Serbian economy has gone, and how it was followed by the changes in secondary education. During the period of 10 years there was a rapid shift in both economic activity and employment from primary and secondary sector towards tertiary sector. At the same time, there has not been recorded a growth in share of students enrolling gymnasiums. In opposite from expected, their share begun to fall during last 5 years. It is possible to conclude that the economic structural change was not accompanied by appropriate change in the educational system, and that it is necessary to implement changes in the composition of education and to adapt it to labour market requirements.

Key words: *Human capital, Structural change, Secondary education*

INTRODUCTION AND LITERATURE REVIEW

Division of the economic activities known as a three sector split was introduced by the economists of the early 20th century Allan G. B. Fisher (1939) and Collin Clark (1940). Introduction of service sector at that time was a result of changes in business activities, which slowly transformed from predominantly agricultural and industrial towards service activities. Such changes are often called structural changes.

[1] This paper is a part of research projects 179015 (*Challenges and prospects of structural changes in Serbia: Strategic directions for economic development and harmonization with EU requirements*), financed by the Ministry of Education, Science and Technological Development of the Republic of Serbia.

[2] Dr Jovan Zubović, Research Associate, Economics Institute, Belgrade, Serbia

The first works have tried to formulate patterns of economic development. The best-known works were written by Fisher (1939), Clark (1940), Kuznets (1966) and Chenery and Syrquin (1975), who argue that along with economic growth, the production shifts from the primary (agriculture, fisheries, forestry, mining) to secondary (manufacturing and construction) and further on towards the tertiary sector (services). This topic was particularly described in papers made by Rostow (1960) in his early works, which led to new knowledge in economic development. This literature is mainly descriptive, attempting to provide a general overview of the development process, with an emphasis on the multifaceted nature of structural changes. In contrast, more recent work tends to be more analytical, using formal models designed to focus on several specific aspects of structural change. During last few decades there was increasing awareness that there is a two-way causal relationship between economic growth and structural changes. Chenery and Syrquin (1975) have further improved their development models in several papers, mostly with an aim of estimating the share of industry in the economy and changes among three sector split.

Economic development, historically speaking, within the concept of an agrarian society was based on predominant share of natural factors and labour work. During the so called “industrial society”, both in manufacturing and in commercial activities, the most important production factor was real and financial capital (money, industrial equipment, energy). Due to rapid technological development at the end of the twentieth century there has been a shift in the direction of "post-industrial society", "information society" or so called "weightless economy" which is dominated by intangible factors. A key factor of production has become a set of intangible elements such as knowledge, information and skills that have greater economic impact and which are gaining a higher market value. Technological development has resulted in gradual loss of importance of the physical work, material technology as well as natural and financial resources. In a knowledge based society the main comparative advantage became a whole range of intangible factors (such as information, knowledge, skills, and work culture). Knowledge and information have not been limited to the services sector. The modern industry and agriculture is increasingly dependent on research and use of information and knowledge in defining its products, as well as commodity and financial markets (Zubović, Domazet, Bradić-Martinovic, 2008).

According to World Bank databank in 2010 in only 38 countries services accounted for less than 50 per cent of the GDP, in 43 countries was in a range of 40-50% while in 82 countries the share of the service sector was greater than 60 per cent of GDP (World Bank databank). Modern economies are predominantly shifting towards tertiary sector. Along with such changes, there comes a change in the labour market,

hence requiring more educated people who could support growth in the changed economic structure.

In the nineties there has been shaped a current development concept of sustainable development that is based on the new growth theory in which the applied knowledge and complex scientific and technological development are the core of growth. Key determinants of the growth speed and development of national economies are becoming speed of innovation and the ability to create an economy that was theoretical knowledge into inventions and new technology, a key determinant of national wealth is the ability to generate new ideas, innovations, and knowledge can be subsumed under the disposal of creation and human capital.

Structural change is a composite and complex phenomenon. It is expected that such changes bring about economic growth through a process of corresponding changes in various aspects of the economy. They include changes in the composition of output and employment, business organization etc. The final goal of structural changes is a shift in the growth process of an organization or the economy. According to Landesman (2000) structural changes are changes in compositional structures of output, employment, exports, etc. They may occur as a result of different types of shocks, such as plagues, wars, revolution, discovery of a continent and major technological breakthroughs. Here, however, we confine ourselves to the structural changes experienced by the economy during its development. It is a complex, intertwined phenomena, not only because economic growth brings about additional changes in various aspects of the economy, such as sector composition of output and employment, the organization of industry, the financial system, income and wealth distribution, demography, political institutions, and even value system in society, but also because these changes in turn affect the processes of growth.

The process of transition that is associated with a change in the structure of economies of former Eastern bloc is one of the important factors that led to the comprehensive structural changes. As noted above, economic development leads to a shift of a large number of people to working in the service sector. The swift structural change caused by transition has fostered the importance of human capital.

According to Ngai et al (2007) economic growth takes place at uneven rates across different sectors of the economy with a goal of altering sectorial total factor productivity (TFP) growth rates. Structural change among other includes the state in which at least some of the labour shares in different sectors are changing over time. Therefore in the long term it is necessary to coordinate such changes with changes in the educational system.

In this chapter we will analyse the suitability of development of human capital by comparing the enrolment in secondary education with the economic structure over the 10 year period. We will analyse the structural change in Serbia during the transition from the planned to a market economy, with a focus on the period 2000-2011 and with regard to the three sector hypothesis. Similarly to Kauffmann methodology (2005) the computation of their shares at GDP shows results that clearly prove claims that Serbia is on the road to a post-industrial service economy.

Higher levels of human capital attained through improved education makes possible for an individual to add more value and to perform their tasks more efficiently and faster. That very person also may apply new ideas and be innovative. Higher levels of human capital lead to increased productivity and innovation. As it is well known that according to global competitiveness index of World Economic Forum, country may belong to one of three stages in their development. Stages two and three are known as efficiency-driven and the innovation-driven stages. Therefore we assume that human capital plays highly significant role in strategic changes driven by transition.

TRANSITIONAL ENVIRONMENT IN SERBIA

In Serbia, economic development was defined with the National Strategy for Sustainable Development, which analyses the strengths and weaknesses and the opportunities and threats to sustainable development by 2017 (Government of RS, 2008, 2011). Sustainable economic development should provide permanent long-term growth that will be based primarily on knowledge, information, people, education and quality of relationships between people and institutions rather than the excessive use of natural resources.

National Sustainable Development Strategy of the Republic of Serbia was made after they had already prepared and adopted national development strategies that are directly relevant to this document: National Strategy of Serbia for European Union Accession, Poverty Reduction Strategy, National Strategy for Economic Development of Serbia 2006-2012, Draft National environmental Strategy and some other sectorial strategies. Hence, the perspective of sustainable development in the Republic of Serbia is in introducing, adapting and applying the principles prevailing in the European Union and the increasing competitiveness based on knowledge, innovation and entrepreneurship.

The SWOT analysis prepared in the Strategy defines advantages as the following: a potentially skilled labour force, growth in private sector and the existence of significant financial experts and the Diaspora. Weaknesses that can be seen in Serbia are: slow privatization, the insufficient number of "greenfield" investment,

continuing brain drain, a very low rate of spending on education and science as a share of GDP, and the adverse socio-economic status of young people. The opportunities that are observed in the strategy include among others: the completion of the privatization process, increase of public-private partnership, while threats for successful sustainable development are: the growth of unemployment, poverty, debt and slow economic growth, unfavourable demographic trends, and possible lack of political will for the implementation of legal reforms. Knowledge society and knowledge-based economy, however, does not imply a rigid, facto-graphic, school and textbook knowledge, but a set of skills, abilities and competencies that create innovation, foster working with others and acting in general well-being. In this regard, it is important to take into account the different types of knowledge.

To take advantage of the concept of the knowledge economy at the national level, it is not enough to gain effects of the market valuation of such new production factors and spontaneously restructure the economy towards sectors with the greatest knowledge. For realization of this concept, according to the experience of the advanced economies, the most important are the following factors (Government of RS, 2008, 2011):

- Modern education;
- Resources for research and development, especially investments in modern industry
- Relevant scientific, technological and cultural policy in society
- Proper management of economic change in line with changes in the world and the environment
- Choice of macroeconomic policies, system and structural economic solutions;
- Telecommunications, mass use of computers and other modern technical equipment;
- Sectors of high technology and defining incentives to attract foreign investment in these sectors;
- Protection of property rights and in particular intellectual property
- Social responsibility.

The system of sustainable development means the people quickly learn, they are innovative and creative. The analysis of educational system in Serbia tells us it is unsustainable, since it is inefficient and does not produce quality outcomes at any level of education (primary, secondary and higher). The consequence of such a system is a general low level of education, out-dated program, lack of standards for quality assurance of education, a large outflow of trained personnel overseas. There is a lack of modern skills needed in the educational process to the teachers and the students (pupils), and therefore students are not provided with intellectual self-

regulative skills necessary for learning, critical thinking and solving problems, do not provide opportunities for relevant intellectual activities of students or foster research and innovation. In Serbia benefits of early education are not utilised, a large proportion of the population remains excluded from the educational system, and those who get to tertiary level often abandon or rarely end their studies in reasonable time.

The current Serbian economy is based on the unfavourable economic structure, with a given natural and financial resources, technology and people. All these resources are relatively scarce. Part of the limitation comes from the relatively weak natural, technological and financial basis. Republic of Serbia with its 8 million inhabitants and a gross domestic product of just over 30 billion euros is not a country of significant market or economic potentials, both at the global or European level.

Results of primary education test in Serbia, as measured by PISA, show that mathematical and scientific literacy are far below the European average. The relationship between general and vocational education in secondary schools is very unfavourable to the detriment of the general education, whose participation should be increased from current 26% to at least 40%. Many high school students dropouts appear later in the labour market as unskilled workers, so that every 13th generation of young people (on average) comes from the school system without qualification.

Despite these poor indicators, by implementation of appropriate economic strategies, Serbia could significantly improve the relatively poor position in relation to the referenced countries in transition, especially in comparison to those from the Eastern Europe. The progress in the next phase of development of Serbian society, government and industry should not be short-lived and unpredictable consequences. It is necessary to provide conditions for sustainable development of economy based on knowledge that will lead to an increase in the group of key economic indicators such as GDP growth, employment, foreign trade, competitiveness and exports, investment and living standards.

To conclude this environmental analysis we may state that Serbia requires a new system of education which must ensure the integration of knowledge from all relevant sectors with special emphasis on the application of that knowledge. It must be strengthened basic and applied knowledge as a precondition to adapt to the labour market, to ensure access to quality education for all, to strengthen early education and develop a system of continuous education and to achieve the broad capabilities of educated people in accordance with changes in technology and changing economic environment. It is necessary to integrate the knowledge and the way of finding the best techniques and methods in all spheres of human life, to provide the conditions necessary to implement the concept of interdisciplinary

education for sustainable development. For this purpose, participation and cooperation of all stakeholders (schools, businesses, policy makers, civil society, etc.) is required along with intensive international cooperation with relevant scientific and educational institutions.

STRUCTURAL CHANGE IN SERBIA

Following the statistical indicators of the extent of gross product in Serbia and comparative analysis with the movement of employment structure by sector of activity is possible to obtain indicators of productivity in certain sectors of economic activity, as shown in the following tables. Table 1 shows the change in Serbia GDP by economic sectors.

Table 1: Structure of GVA (% of total in constant prices 2002)

NACE rev 2, sector	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Primary	*15.7%*	*14.8%*	*13.7%*	*14.9%*	*13.5%*	*12.7%*	*11.1%*	*11.4%*	*11.9%*	*11.6%*
Secondary	*27.0%*	*27.9%*	*27.6%*	*27.1%*	*26.4%*	*26.1%*	*26.1%*	*25.2%*	*22.4%*	*22.0%*
B	1.8%	1.7%	1.8%	1.7%	1.7%	1.7%	1.6%	1.6%	1.5%	1.6%
C	18.3%	18.5%	17.5%	17.3%	16.5%	16.5%	16.3%	15.7%	13.6%	13.7%
D	3.0%	2.8%	2.9%	2.6%	2.7%	2.6%	2.6%	2.5%	2.6%	2.4%
E	1.3%	1.2%	1.3%	1.0%	0.9%	0.8%	0.8%	0.7%	0.8%	0.8%
F	2.7%	3.6%	4.1%	4.5%	4.6%	4.6%	4.8%	4.8%	4.0%	3.6%
Tertiary	*57.3%*	*57.3%*	*58.8%*	*58.0%*	*60.2%*	*61.1%*	*62.8%*	*63.3%*	*65.7%*	*66.4%*
G	7.2%	8.1%	8.7%	9.5%	10.9%	11.4%	12.6%	12.9%	12.0%	11.9%
H	4.7%	4.7%	4.6%	4.5%	4.8%	4.9%	4.8%	4.5%	4.1%	4.4%
I	1.1%	1.1%	1.1%	1.0%	0.9%	0.8%	0.9%	0.8%	0.8%	0.7%
J	4.5%	4.5%	5.3%	5.8%	7.1%	8.9%	10.4%	11.3%	12.9%	13.5%
K	4.1%	3.8%	3.7%	3.7%	4.0%	4.5%	4.6%	4.9%	5.3%	5.6%
L	13.7%	13.5%	13.7%	12.9%	12.7%	12.2%	11.8%	11.6%	12.1%	12.2%
M	2.0%	2.0%	1.8%	1.8%	1.8%	1.7%	1.7%	1.8%	2.0%	2.0%
N	1.0%	0.9%	1.1%	1.1%	1.1%	1.1%	1.1%	1.2%	1.4%	1.4%
O	7.4%	7.4%	7.6%	7.3%	6.9%	6.4%	6.0%	5.8%	6.1%	5.8%
P	3.9%	3.8%	3.8%	3.5%	3.3%	3.1%	2.9%	2.7%	2.8%	2.7%
Q	5.7%	5.6%	5.6%	5.2%	4.9%	4.5%	4.3%	4.2%	4.4%	4.3%
R	1.0%	0.9%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.9%	0.9%

NACE rev 2, sector	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
S	0.9%	0.8%	0.8%	0.8%	0.7%	0.8%	0.7%	0.7%	0.8%	0.7%
T	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%

Source: Statistical Office of the Republic of Serbia, Web Database

The table 1 shows that the Serbian economy experienced significant change in structure of the economy in the period 2000-2010. These changes were in line with the Lisbon strategy (Kok 2004) that "the European Union by 2010 needs to become the world's most competitive and dynamic knowledge-based economy capable of sustainable economic growth with more jobs and better paying jobs", which was accepted by Serbia, and Serbia with the aim of becoming an EU member. The share of agricultural sector in achieving the gross value added dropped from initial 15.7% down to 11.6% in 2010. Along with that there has been a drop in the share of secondary sector from initial 27.0% to 22.0%. Share of tertiary sector on the other hand significantly increased from 57.3% in 2002 to 66.4% in 2010. The largest share of this increase had three branches and retail trade, transport, storage and communication and financial intermediation.

Let us have a look how such structural changes have been accompanied with the change in the structure of labour force in Serbia. Table 2 shows the change in employment share by economic sectors.

Table 2: Structure of employment by economic sectors

NACE rev 2. sector	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Primary	4.5%	4.4%	4.3%	4.1%	3.8%	3.6%	3.4%	3.0%	2.9%	2.8%
Secondary	45.9%	44.5%	43.4%	41.5%	40.6%	39.7%	38.3%	37.0%	35.4%	33.9%
B	2.1%	2.0%	2.0%	2.0%	2.0%	1.9%	1.6%	1.6%	1.6%	1.7%
C	34.5%	33.1%	31.9%	29.9%	29.0%	27.8%	26.6%	25.2%	23.6%	22.3%
D	1.9%	1.9%	1.9%	1.9%	1.8%	1.8%	1.9%	2.0%	2.0%	2.1%
E	1.8%	1.7%	1.9%	1.9%	2.0%	2.1%	2.2%	2.2%	2.3%	2.4%
F	5.7%	5.7%	5.7%	5.8%	5.9%	6.0%	6.0%	6.0%	5.9%	5.5%
Tertiary	49.6%	51.1%	52.4%	54.5%	55.5%	56.7%	58.2%	59.9%	61.7%	63.4%
G	11.3%	11.9%	12.3%	13.0%	13.1%	13.3%	13.5%	13.8%	13.7%	13.8%
H	6.7%	6.7%	6.4%	6.5%	6.5%	6.4%	6.5%	6.5%	6.5%	6.6%
I	2.2%	2.1%	1.9%	1.8%	1.7%	1.7%	1.7%	1.7%	1.6%	1.5%
J	2.0%	2.0%	2.3%	2.4%	2.5%	2.5%	2.5%	2.6%	2.6%	2.7%
K	2.3%	2.2%	2.2%	2.2%	2.2%	2.5%	2.4%	2.5%	2.8%	2.9%

NACE rev 2. sector	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
L	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%	0.2%	0.2%	0.2%
M	2.4%	2.4%	2.4%	2.5%	2.7%	2.9%	3.1%	3.4%	3.6%	3.8%
N	0.8%	0.9%	1.0%	1.1%	1.4%	1.5%	1.6%	1.8%	2.1%	2.3%
O	3.6%	3.9%	4.2%	4.5%	4.6%	4.7%	4.8%	4.9%	5.1%	5.2%
P	6.8%	7.6%	7.9%	8.3%	8.4%	8.5%	9.0%	9.3%	9.7%	10.1%
Q	9.8%	9.6%	9.9%	10.2%	10.6%	10.5%	10.7%	11.0%	11.4%	11.8%
R	1.0%	1.0%	1.0%	1.1%	1.2%	1.2%	1.3%	1.4%	1.5%	1.6%
S	0.8%	0.8%	0.7%	0.8%	0.8%	0.9%	0.9%	1.0%	1.0%	1.0%
T	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Source: Statistical Office of the Republic of Serbia, Web Database

Here we must note that data in table 2 refers only to persons employed by legal entities, which comprises to around 70% of total employment in Serbia. Despite some variations it is obvious that there exist a similar trend as in the DVA creation. There is a continuous fall in number share of employment in Primary and secondary sector, as long as the share of tertiary sector is steadily growing.

STRUCTURAL CHANGE IN DEMAND FOR LABOUR

The global recession in 2009 hit all economies in Europe, which was reflected in the labour markets of corresponding countries. Competitors in a globalized world are increasingly demanding strengthening of comparative advantage. Employment policies must focus on preparing for major structural changes that will involve the redistribution of workers across sectors. This will lead to changes in future demand for labour. Initially companies will seek for highly trained professionals that will be followed with a request for lifelong training and education of employed workers trained in new technologies and for new jobs.

Table 3: Share in employment by level of education

	Education level		
	Primary	Secondary	Tertiary
EU 27	22.3	49.3	28.1
Bulgaria	14.4	59.5	26.1
Check republic	5.3	77.7	17.0
Hungary	11.8	64.2	24.0
Poland	8.1	66.3	25.6
Romania	22.4	61.7	16.0

	Education level		
	Primary	Secondary	Tertiary
Slovenia	13.0	61.3	25.7
Slovakia	4.1	77.9	18.1
Croatia	15.3	63.8	20.9
Serbia	23.7	55.4	20.1

Source: Eurostat (online database)

The main characteristics of European trends in the educational structure of employees is the increase in the share of higher qualification levels - above the high school and at the same time reducing the share of manual workers - skilled, semiskilled and unskilled workers.

As compared to other transitional countries Serbia has the highest employment rate of primary education in Europe with 23.7% and the lowest employment rate of secondary education with 55.4%. The employment rate of university educated tends to increase and amounted to 20.1%, which is still below the EU average and many neighbouring countries.

STRUCTURAL CHANGE AND TECHNOLOGY

In any economy, creation of the advanced industrial structure is a long process requiring extensive investments, development of a complex infrastructure, continuing education and highly qualified workforce and long-term systematic planning of technological development. From the technological point of view, the industry in Serbia is in a state of technological disadvantage, not only compared to world's leading economies and the economies of the European Union but also in relation to the level in Serbia before 1990. There is a shift towards labour-intensive technology sectors, with a negligible share of development components (design and development of new products, equipment and technological processes), and it is experiencing the intense degradation of the technological base. Herewith we wanted to present current situation in Serbia regarding the technological profile and distribution in Serbian industry (table 4).

Some segments, especially in terms of high tech and medium high-technology have completely disappeared. For example, the industry no longer manufactures machine tools, industrial robots and transfer lines for the automotive and other metal processing industries. That sector through its generic properties in the period before 1990 represented the motor for industry development, as an essential component of technological independence and long-term stability. At the same time, the

production of these types of products it exports, contributed significantly to the reputation of the Serbian industry worldwide.

Table 4: Technological profile of industry structure in Serbia 2010.

Investments in R&D	Subsectors	Number of companies	Employment	GVA
< 1 %	Low-tech (LT)	64.0	51.2	50.7
	Food industry	18.8	23.0	29.9
	Textile	12.9	9.9	4.9
	Leather	1.7	3.0	1.4
	Wood	9.1	3.4	2.1
	Paper. printing	10.9	6.1	8.1
	Other	10.6	5.8	4.3
1 % - 2%	Medium-low-tech (MLT)	25.4	23.1	25.4
	Cox and refined petroleum	0.1	0.2	0.3
	Rubber and plastics	5.4	5.3	6.0
	Other minerals	5.1	4.8	6.0
	Metal industry	14.8	12.8	13.1
2% - 5%	Medium-high-tech (MHT))	5.4	18.8	16.4
	Chemical industry	2.1	5.3	7.7
	Machinery and equipment	2.4	7.0	5.0
	Means of transportation	0.9	6.4	3.8
> 5%	High-tech (HT)	5.1	6.9	7.5
	Electronics industry	5.1	6.9	7.5

Source: Republican development agency

A similar situation is present in other manufacturing sectors such as manufacturing of electronic equipment, transport vehicles (cars, trucks, buses and aircraft), or agricultural machinery sector. Devastation of those sectors virtually paralyzed the processing industry, as they retreated behind other sectors of Serbian industry and led to the destruction of huge numbers of small and medium enterprises, which had a production program based on cooperative relationships, with specialization in a narrow class of goods or previously mentioned components of complex metal products industry. Today the process of technological development has an inverse nature.

STRUCTURE OF SECONDARY EDUCATION IN SERBIA

It is necessary to compare the economic data which are presented in tables 1-4 with the data on education. Knowing from table 3 that from all transitional countries, Serbia has the lowest share of secondary educated persons, we wanted to compare it with the structure of students in secondary schools in Serbia (table 5).

Table 5: Structure of students in secondary education institutions 2001-2010 (as a share in total)

Type	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Vocational education	24.6	24.7	24.4	23.4	23.7	24.3	24.4	24.1	23.9	21.8
Gymnasium	75.4	75.3	75.6	76.6	76.3	75.7	75.6	75.9	76.1	78.2

Source: Statistical yearbook of Serbia, several years

It is easy to derive that the network of vocational schools in Serbia today is not a reflection of economic and social needs of the local community. The changes in the number, location and type of secondary schools that offer educational attainment, did not follow the economic trends in the community. A large number of vocational schools were established as a result of the demand from former large and powerful economic giants that belonged to the industrial sector. No matter that in the process of privatization and restructuring a large number of jobs were closed in many businesses, professional schools have continued education of staff for the now non-existent local economy. This entails a number of problems in the implementation of the educational process, such as lack of implementation of the practical work of uneven quality because it is implemented in the school workshops and laboratories which are not equipped with the prescribed standards, the inability of direct training of teachers of vocational subjects in real work environment, and producing a further redundancies on local labour market.

It is indicative that the enrolment in gymnasiums is one of the lowest in Europe, where the standard is about 40%. This fact is especially important because some of the research conducted at universities indicate that gymnasium students are more successful in the studies than students coming from vocational schools. Unfortunately, there is a trend in reduction of the share of gymnasiums during last 5 years. Therefore we assume that there is a high need for changes in educational system.

CONCLUSIONS AND RECOMMENDATIONS

Serbia has gone through a harsh economic structural change since the beginning of transition. Such change was not accompanied and followed by appropriate change in the educational system, especially with the structure of secondary education.

Given the current structure of secondary education, in order to achieve better results, it is inevitable to introduce several changes. Vocational education and training should respond to the demands of employers and to empower young people and adults to achieve the required competences to get a job and at the same time and give them the chance for further education and training. Key knowledge, skills and competencies that lead to simplified employment include:

- Intellectual and sensorimotor skills,
- Social and interpersonal skills and knowledge (communication, teamwork, decision making, accountability),
- Business and entrepreneurial skills and knowledge (of entrepreneurial skills, creativity and innovation, self-employment),
- Multiple technical skills and knowledge,
- Awareness of the need for lifelong learning,

Based on the above it is possible to define requirements for the further reform of vocational education:

- Setup of flexible vertical and horizontal mobility in the formal and informal vocational education and training,
- Creation of a close and on-going employees participation in the process of determining the qualifications and the development and implementation of educational programs,
- Introduction of quality assurance in the education process,
- Equalization of qualifications obtained in non-formal education, or through various educational programs outside the school system with qualifications in the formal education system,
- Establishing a system of accreditation and certification in formal and informal education and vocational training.

To ensure a workforce which has a quality, which is ready and able to respond to the demands of modern technology on the one hand, and the conditions of market economy on the other hand, it is necessary to continue with the education reform at all levels, Moreover all participants in the educational process and society as a whole should be aware that is education is never-ending process of and that and the education system needs to respond to requests from employers fast and more efficient.

The reform process must be based on the following activities:

- Establishment of a system of social partnership at all levels between workers, education system and science,
- Development of educational programs based on the standards of qualification,
- Improvement of educational institutions and the continuous development of teachers,
- Establishing a system to assure quality education,
- Establishing a network of educational institutions as a response to requirements of the economy,
- Establishment of research in education.

References

[1] Chenery, H. B., and M. Syrquin (1975) *Patterns of Development, 1957–1970*. Oxford University Press, London.

[2] Clark, C (1940) *The Conditions of Economic Progress*. McMillan & Co.s London

[3] Echevarria, Cristina (1997) *Changes in Sectoral Composition Associated with Economic Growth,* International Economic Review, 38(2), pp. 431-452.

[4] Fisher, A.G.B. (1939) *Primary, Secondary and Tertiary Production*, *Economic Record* 15, 24–38.

[5] Government of Republic of Serbia (2008) *Strategija održivog razvoja Republlike Srbije*, finalni nacrt, available on http://www.odrzivi-razvoj.gov.rs/cyr/strategije.php

[6] Government of Republic of Serbia (2011) *Strategy and policy of industrial development of Serbia 2011-2020*

[7] Kauffmann A (2005) *Structural Change during Transition: Is Russia Becoming a Service Economy?*," Volkswirtschaftliche Diskussionsbeiträge 80, Universität Potsdam, Wirtschafts- und Sozialwissenschaftliche Fakultät.

[8] Kok W (2004) *Facing The Challenge. The Lisbon strategy for growth and employment. Report from the High Level Group*, November, Office for Official Publications of the European Communities, available on: http://ec.europa.eu/growthandjobs/pdf/kok_report_en.pdf

[9] Kuznets, S (1966) *Modern Economic Growth,* Yale University Press, New Haven, CT.

[10] Landesmann M (2000) *Structural Change in the Transition Economies*, 1989 to 1999, WIIW working paper, Wien

[11] Ngai, L. Rachel and Pissarides, Christopher (2007) *Structural change in a multi-sector model of growth. American economic review*, 97 (1). pp. 429-443. ISSN 0002-8282

[12] Rostow, W.W (1960) *The Stages of Economic Growth: A Non-Communist Manifesto*, London, Cambridge, University Press

[13] Zubović J, Domazet I, Bradić-Martinović A (2008) *Foreign investments to developing countries´ food industry : does it improve competitiveness, trade and R&D*, in "State, Possibilities and Perspectives of Rural Development on Area of Huge Open-pit Minings", Institute for agricultural economics, Belgrade

[14] World bank databank, available on: http://data.worldbank.org/indicator/NV.SRV.TETC.ZS