# 4 Participation Rates and Investment in Education in Croatia*

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## Abstract

Sustainable development of each national economy depends mainly on the quality of human capital. The quality of human capital is determined by the quality of the educational system, investments in education and participation rates. Lagging behind in the development process of the educational system and insufficient investments in the formation of human capital could become major obstacles to achieving long-term sustainable development in the Republic of Croatia. This paper gives a comparative overview of participation rates and investments in education in Croatia as well as in some developed OECD and EU countries and selected transition countries. The concluding part recommends key measures for policy makers.

**Key words:** human capital, participation rates, investment in education
**JEL classification:** I21, I22, I28

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# 1 Introduction

The EU's *Lisbon Strategy* (European Union, 2000) emphasizes investments in human capital as one of the key priorities for creating a modern, competitive knowledge-based economy. In addition to its positive impact on growth, education is singled out as an economic policy priority also because of the possibilities it provides in terms of social inclusion of marginalized social groups, the unemployed and the poor. Encouragement of investments in human capital and life-long learning is also underlined in the new *European Employment Strategies* guidelines (European Union, 2003) with the aim to achieve higher employment rates and create better jobs.

Increased investments in human capital, or education, are one of the main economic policy priorities of developed countries. Human capital is usually approximated with the average level of qualifications, i.e. education of population. However, in addition to psychological and physical abilities of individuals, human capital also includes their social and health competences. Investments in human capital comprise investments in education and in-job training as its most important segment, but also include other investments that increase the productivity of individuals, such as investments in health (Šošić, 2004).

The present paper analyses the human capital approximated with the level of education of the population and participation in education, and demonstrates the role and importance of human capital for economic and social development. Educational institutions and the educational level of the population affect not only the formation of human capital, but also strengthening of social capital. Education provides non-market side-effects, such as easier access to information, greater care for one's own health and more active participation in social life, which encourages responsible, democratic behaviour of citizens, election of a democratic government, and achievement of the rule of law (Bejaković, 2004). The purpose of this paper is to stress the importance of human capital for sustainable economic growth, to assess the human capital situation in Croatia based on a comparative analysis of participation and investments in education, and, in conclusion, to propose measures to be taken by policy makers.

Human capital is created in formal and informal educational systems. The informal system includes family upbringing and education, but also the available means of informal[1] education (media, newspapers, television, public meetings, access to public libraries, public workshops, public campaigns, gatherings etc.). Because of the relatively greater importance of formal education in the formation of human capital, this paper is focused on the analysis of human capital formation within the system of formal education. The formal education system includes: pre-primary education, compulsory primary education, secondary education, college and university education, and the system of life-long and adult education.

The paper gives an overview of participation rates in each of the above-mentioned subsystems, and compares the participation rates in Croatia with those in OECD and EU countries and selected transition countries. The analysis takes into consideration the fact that the *level of human capital,* that is indicators of the educational level of population, is fundamental to economic growth. The quantitative aspect of the level of human capital is approximated either with participation rates of specific age groups in education or with an average number of years of completed education. Essential for formation of human capital and creation of conditions for a stable and long-term sustainable economic growth and development is the *quality of educational systems*. However, since Croatia is not included in international surveys of student population, this paper cannot provide an assessment of the quality of Croatia's educational system.

The paper is divided into five chapters. The first, introductory chapter deals with the importance of human capital for creating conditions for a long-term sustainable development. The second chapter provides an overview of selected empirical surveys on the relationship between the level of human capital and economic growth. The third chapter provides a comparative overview of participation rates in formal education in Croatia and EU and OECD countries,

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*[1] Formal education is education aimed at attaining a recognized level of education (e.g. compulsory primary school, secondary school education, university education).*

*Informal education includes education for personal development, learning of foreign languages/computer training for personal needs, education for social roles - civil and political education - often called complementary education in terms of being complementary to the content provided by formal education.*

*Informal education includes self-education and independent learning, unintended - casual learning, education with the help of media, and is implemented through an increased accessibility of books, magazines, newspapers, films etc.*

and selected transition countries. The fourth chapter illustrates, compares and analyses the amount of public expenditure on education between Croatia and the above-mentioned countries. The final chapter brings recommendations for economic policy.

## 2 Human Capital and Economic Growth – Selection from Empirical Research

Human capital was first indirectly mentioned in empirical studies on economic growth in the 1960's in the works of Abramovitz (1956) and Solow (1957). In addition to conventional production factors, *land, labour and physical capital,* they introduced technological progress as an important factor in production accounting for about 75 percent of economic growth. For these authors, technological progress meant all intangible factors of growth, such as advancement of existing and introduction of new technologies and production processes, changes in *education and qualifications of employees* etc. Nevertheless, the neoclassical theory of growth has failed to clearly define which factors lead to technological progress and has provided no explanation of such factors.

During the mid-1980's, *endogenous growth theories* emerged which assume that knowledge or ideas are the driving force of technological changes. With the endogenous growth model, which was developed by Romer (1986), contemporary economies are experiencing huge structural changes while trying to adapt themselves to the laws of the knowledge economy. In his 1986 model, Romer adopts Arrow's hypothesis of *learning by doing* and adds a new hypothesis of knowledge spillover. As opposed to the neoclassical model, which assumes that growth is based on investments in physical capital and an increase in labour force, the economic growth in this model is primarily based on investments in research and development, and education. Such newly created knowledge becomes available to all and for Romer this new knowledge is a key externality that is identical with the term of technological progress. Lucas (1988) developed a growth model based on externalities resulting from the process of *accumulation of human capital,* either through formal education of through learning by doing. In this model, investments in human capital are reflected in a higher level of technology through a spillover effect.

There is a large number of empirical studies on economic growth that are trying to determine the level and the intensity of relationship between investments in formation of human capital and the achieved economic growth rates. The majority of studies have shown a positive correlation between investments in formation of human capital and the achieved economic growth rates (Nelson and Phelps 1966; Benhabib and Spiegel, 1994). In some studies, the positive impact of investments in formation of human capital on economic growth is explained by modelling of technological progress or by modelling of total factor productivity growth, which is a function of the level of education and the quality of human capital. Namely, a better educated labour force (better quality human capital) is more able to innovate new technological products and processes, to acquire more quickly the knowledge that is essential for implementation of new, highly sophisticated technologies, and thus to generate economic growth. Also, some explanations of the positive impact of investments in formation of human capital on economic growth are trying to prove that a better trained and educated labour force will attract a higher level of investments in physical capital, and it is known that investments in physical capital correlate positively with economic growth.

In numerous empirical studies on economic growth, human capital appears as an independent variable and is evaluated by the *quantity* of education (average number of years of completed secondary, college and university education). Such an approach is found in Barro's research (2001). Empirical testing was conducted on the basis of information for roughly 100 countries at different levels of economic development and includes data for three decades: 1965-1975, 1975-1985 and 1985-1995. Real GDP growth rate was used as a dependent variable and the effect of a number of independent variables was examined. Human capital is defined with the percentage of the male working population over 25 with the completed secondary and tertiary levels of education. Apart from this independent variable, the statistically significant positive coefficient was estimated. The estimated coefficients indicate that *an additional year of schooling* of the said population group would raise the *economic growth rate* by approx. 0.44 percent per year. A crucial finding of this research, despite certain problems with direct interpretation of the result, is that the established relation is positive and statistically significant. However, despite the fact that evaluation results of this regression equation demonstrate the significance of the impact of the level of human capital estimated using a quantitative approach, some researchers stress the *quality of education* as a more important factor

in the formation of human capital and achievement of higher economic growth rates.

For example, Hanushek and Kimko (2000) have shown that scores on international examinations (which are conducted in order to evaluate the quality of educational systems across countries) have a more significant relation to economic growth rates than when using human capital measured by the number of completed years of schooling, the proportion of population with a certain level of school attainment in overall population, and other similar quantitative indicators. The authors place emphasis on the quality of human capital measured by the quality of the system participating in the formation of human capital. The quality of different educational systems is measured and compared to the test results in a student sample from various countries. Knowledge of mathematics and other sciences are being tested and based on test results the quality of different educational systems was evaluated[2].

Hanushek and Kimko (2000) have evaluated a number of regression equations using the results of the said tests. Into the growth equation in their model they introduced a variable they call the *quality* of labour force that is measured by the achieved test scores. The authors have shown that the effects of improvements in *quality* contribute more significantly to economic growth than improvements in quantitative indicators only. More efficient educational systems, whose students score better on international tests, produce a better quality workforce. Hence, the authors' conclusion is that the qualitative aspect contributes *relatively* more to economic growth than the mere improvement in quantitative indicators, through, for example, an increased proportion of highly educated working-age persons.

[2] *All tests were conducted over the last three decades by IEA (International Association for the Evaluation of Educational Achievement) and IAEP (International Assessment of Educational Progress). IAEP's approach is more suited to the USA, whereas the IEA testing methodology was designed for international testing.*

# 3 Comparative Overview of Participation Rates in Education

Looking at education trends among working age population in Croatia as indicated by the census data, we notice that secondary education has experienced an expansion over the last four decades. The last transition decade saw the most significant increase in the proportion of working age population with completed secondary school. The proportion of working age population with completed higher education is also increasing, although much less intensively. Nevertheless, Table 1 implies that the level of human capital, measured by the average number of completed years of schooling, has considerably improved. In order to answer the question as to whether the *structure* of such improvement is in itself *sufficiently good* and whether, compared to other developed countries, such improvement is sufficient to enhance the competitive positions of the Croatian economy, a large-scale research is required.

Table 1. **Trends in Educational Structure of Croatian Population Aged 15 and Over According to Level of Education in %**

| | 1961 | 1971 | 1981 | 1991 | 2001 |
|---|---|---|---|---|---|
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| No school and up to 3 years of primary school | 23.5 | 17.0 | 13.5 | 8.6 | 7.4 |
| 4-7 years of primary school | 53.3 | 43.6 | 31.9 | 21.2 | 11.2 |
| Completed primary school | 8.6 | 14.8 | 19.2 | 23.4 | 21.8 |
| Completed secondary school | 12.6 | 20.4 | 28.3 | 36.0 | 47.1 |
| Two-year post-secondary education | 0.6 | 1.4 | 2.7 | 4.0 | 4.1 |
| University education | 1.2 | 2.2 | 3.6 | 5.3 | 7.8 |
| Unknown | 0.2 | 0.6 | 0.7 | 1.5 | 0.7 |

*Source: Census, 2001, Central Bureau of Statistics.*

When comparing data on educational attainment of the population aged 25-64, we may observe that Croatia is not lagging significantly behind the population of the reference transition countries. Still, the data shown in Table 2 reveals that in the age group 25-65 the majority of countries, with the exception of Hungary, have a lower proportion of population with completed primary education than Croatia, and a higher proportion of persons with completed secondary education. However, compared with the selected transition countries, Croatia ranks relatively well in the

proportion of population aged 25-64 with completed two-year post secondary education and university education.

Table 2. **Educational Structure of Population Aged 25-64 in Croatia and Selected Transition Countries in 2001**

| Country | Primary education | Secondary education | Two-year post-secondary and university education |
|---|---|---|---|
| Bulgaria | 28.9 | 49.8 | 21.3 |
| Czech Republic | 13.7 | 74.8 | 11.6 |
| Hungary | 29.9 | 56.1 | 14.0 |
| Slovak Republic | 15.1 | 74.8 | 10.7 |
| Slovenia | 24.6 | 61.2 | 14.1 |
| **Croatia** | **30.9** | **53.2** | **15.9** |

*Source: Labour Force Survey - Principal Results 2001, 2002, Statistics in Focus, Eurostat; Census, 2001, Central Bureau of Statistics.*

## 3.1 Pre-primary Education

According to the Croatian Ministry of Education and Sports (2002) data, 136.840 children, or about 32 percent of the total pre-school population, were included in some form of pre-primary program in public and private kindergartens in Croatia. When comparing data on the rates of participation of children of specific age in pre-primary education in Croatia with information for selected EU countries, shown in Table 3, we may conclude that participation of children in pre-primary education is significantly behind that of EU countries, but also that of transition countries[3], which may have an impact on the overall human capital formation function in Croatia. Countries of the Mediterranean area together with Austria and Belgium have a lower rate of participation in pre-primary education for children under 3 years of age than other countries. Still, Croatia is lagging significantly behind the majority of other countries. An undeniable fact from the quantitative point of view is that EU countries and reference transition countries have a larger number of children entering the system of compulsory primary education more prepared.

[3] *According to Eurostat data, see in Education across Europe (2003).*

Table 3. **Participation Rates in Pre-primary Education for Children in EU Countries**

| Country | Year | Participation rate for children under three years (%) | Participation rate for children over three years (%) |
|---|---|---|---|
| Denmark | 1998 | 64 | 91 |
| Finland | 1998 | 22 | 66 |
| Sweden | 1998 | 48 | 80 |
| Greece | 2000 | 3 | 46 |
| Italy | 1998 | 6 | 95 |
| Portugal | 1999 | 12 | 75 |
| Spain | 2000 | 5 | 84 |
| Ireland | 1998 | 38 | 56 |
| United Kingdom | 2000 | 34 | 60 |
| Austria | 1998 | 4 | 68 |
| Germany | 2000 | 10 | 78 |
| Netherlands | 1998 | 6 | 98 |
| Belgium | 2000 | 30 | 97 |
| France | 1998 | 29 | 99 |

*Source: Employment Outlook, 2001, OECD.*

## 3.2 Participation in Primary and Secondary Education

The net participation rate in compulsory primary education in the Republic of Croatia, as indicated by data shown in Table 4, is high and shows an upward trend towards 100 percent participation, which tells us that in the period to come Croatia should place more emphasis on the improvement of the *qualitative aspect* of compulsory primary education. Compulsory primary education in Croatia is not harmonized with comparable education in developed European countries either in structure or content (Ministry of Education and Sport, 2003a). In Croatia, primary school lasts longer, and compulsory shorter than in developed countries. Local and international experts are therefore suggesting a shortening of primary education to 6 years and lengthening of compulsory education to 9 or 10 years, which should result in an increase in indicators that approximate the level of human capital measured by the average number of completed years of schooling (Office for Strategy, 2002).

| Table 4. **Net Participation Rate in Primary Education** | | | |
|---|---|---|---|
| **Year of enrolment** | **1997/1998** | **1998/1999** | **2000/2001** |
| Children of the official primary school-entrance age | 453,090 | 438,665 | 417,670 |
| Children enrolled in primary schools | 418,312 | 414,466 | 405,682 |
| **Net participation rate in primary education (%)** | **92.3** | **94.5** | **97.1** |

*Source: Education for All: the Year 2000 Assessment Country Report, 2000, UNESCO.*

When speaking of student participation in secondary education, we may indirectly conclude that the number of students who continue to secondary education is growing, as indicated by the data in Table 1 which show that the proportion of persons with completed secondary education has strongly increased in the last transition decade. According to data published in a World Bank study (Berryman and Drabek, 2002), gross participation rate in secondary education amounted to 79.1 percent in 2000. However, the quality of secondary vocational education is questionable. In vocational schools in Croatia, 438 different vocational programs are taught in 28 vocational areas. In the meantime, in line with technological developments, significant changes have occurred in the economic structure of the Republic of Croatia. As a result, some of these specialized training programs are no longer needed, while, at the same time, a need arises for new knowledge and new specializations. Shown in Table 5, according to Croatian Employment Service data, are job categories that have seen the largest unemployment among the young population over the last three years.

| Table 5. **Unemployed Persons in Croatia Aged under 30 – 10 Most Oversupplied Occupations (at December 31 of Reporting Years)** | | | |
|---|---|---|---|
| **Occupation** | **2000** | **Occupation** | **2002** |
| Unskilled worker | 24,439 | Unskilled worker | 20,081 |
| Sales person | 10,538 | Sales person | 9,118 |
| Business high- school graduate | 8,763 | Business high- school graduate | 7,295 |
| Cook | 4,883 | Cook | 3,989 |
| Waiter | 4,741 | Car mechanic | 3,600 |
| Car mechanic | 4,435 | Men's and ladies' hairdresser | 3,501 |
| Men's and ladies' hairdresser | 3,095 | Waiter | 3,193 |
| Mechanical technician | 2,504 | Medical Nurse | 2,336 |
| Truck driver | 2,268 | Ladies' Tailor | 1,800 |

*Source: Croatian Employment Service (2003).*

Despite the fact that these occupations have been in oversupply on the labour market for a number of years now, these secondary school courses of study still have the largest number of students enrolled each year, as indicated by the table below. School programs for jobs like economist, sales person, hairdresser, car mechanic, medical nurse, cook, and waiter continue to attract a large number of students, despite the fact that among unemployed young persons the largest number have been trained for these jobs.

Table 6. **School programs with the Largest Number of Enrolled Students in the First Grade of Secondary School 2002/2003**

| School program | Number of enrolled students | School program | Number of enrolled students |
|---|---|---|---|
| General secondary school | 12,999 | Hotel and Tourist Technician | 1,583 |
| Economist | 4,178 | Medical Nurse | 1,537 |
| Sales person | 2,882 | Cook | 1,535 |
| Hairdresser | 1,668 | Electro technician | 1,530 |
| Car mechanic | 1,591 | Waiter | 1,284 |

*Source: Croatian Ministry of Education and Sports (2003a).*

A crucial problem of secondary school education in Croatia is the non-existence of horizontal and vertical flow between individual programs and courses of study, with the resulting negative effects on the labour market. Poor financing structure also results in negative effects on the quality of the education process and a lack of technological equipment in schools. Vocational schools are particularly hard hit by this problem. As illustrated by Table 7, the largest part of funds (about a quarter) is spent on staff wages and current expenses, with only a small proportion of total funds allocated to capital investments and modernization of schools.

Table 7. **Total Investments in Secondary Education – According to Allocation, in HRK 000**

| | 1999 | 2000 | 2001 | 2002 | 2003 |
|---|---|---|---|---|---|
| Wages and benefits | 1,219,551 | 1,359,485 | 1,386,043 | 1,395,085 | 1,547,085 |
| Current expenses | 123,312 | 110,498 | 192,825 | 222,522 | 249,235 |
| Lodging and board in pupils' hostels | 29,614 | 40,806 | 30,655 | 37,230 | 37,530 |
| Transport for pupils from areas of special state interest | - | - | - | - | 24,999 |
| Capital investments | 55,867 | 48,885 | 146,552 | 216,938 | 227,270 |
| Special programs | 6,394 | 6,536 | 8,006 | 8,368 | 12,661 |
| Total | 1,434,738 | 1,566,210 | 1,764,081 | 1,880,096 | 2,098,780 |

*Source: Croatian Ministry of Education and Sports, (2003b).*

## 3.3 Tertiary Education

As shown by data in Table 8, the number of freshmen students enrolled in institutions of higher education in the Republic of Croatia has seen a sharp upward trend in recent years. The proportion of highly educated people with tertiary education in total active population is about 13 percent, while in European countries this proportion ranges from 15 percent - Austria, the Czech Republic, Hungary – to over 30 percent - Ireland, Belgium, Finland - (Ministry of Education and Sports, 2003a).

The Croatian education strategy (Office for Strategy, 2002, p. 69) states: "The goals of higher education are multidimensional and consist in contribution to the development of economy, democracy and culture, and to personal development of citizens, which means that higher education affects all principal aspects of national development". Even though the proportion of highly educated people in the labour force is not a decisive indicator of labour force competitiveness because of large variations in the quality of tertiary education, the indicator of dynamics of student enrollment in tertiary education over the recent years reveals a certain trend and shows an orientation of national policies towards a knowledge-based society. For comparison with comparable transition countries with regard to participation in higher education we may use data on trends in the number of enrolled students per 10,000 citizens in the past transition decade. Table 8 indicates that in the period 1990-2000 all selected transition countries have

increased participation in tertiary education. Whereas in 1990 Croatia scored highly in terms of the number of enrolled students per 10,000 citizens taking third place, in 2000, among eight selected transition countries, it ranked second-to-last before the Czech Republic. In the reporting period, the largest increase in participation in tertiary education was experienced by Poland, with the number of enrolled students in 2000 almost fourfold from 1990, by Hungary, Romania and Slovenia. Compared to these countries, Croatia has experienced the weakest growth rate in participation in tertiary education.

Table 8. **Number of Enrolled Students per 10,000 Citizens in Selected Transition Countries**

| | Number of students per 10,000 citizens 1990 | Number of students per 10,000 citizens 2000 | Growth indices 2000/1990 |
|---|---|---|---|
| Poland | 105 | 408 | 389 |
| Hungary | 99 | 321 | 324 |
| Romania | 83 | 238 | 287 |
| Slovenia | 152 | 344 | 226 |
| Slovak Republic | 120 | 233 | 194 |
| Czech Republic | 114 | 202 | 177 |
| Bulgaria | 175 | 279 | 159 |
| **Croatia** | **148** | **229** | **155** |

*Source: Countries in Transition, 2003, WIIW.*

If, in addition to this indicator, we take into consideration the "intrinsic ineffectiveness" of the Croatian two-year post secondary and university education, with its long average length of studies and a large drop-out rate, Croatia is in an even less enviable position in regard to formation of human capital assuming that the Croatian system of tertiary education has the same level of quality as tertiary systems in the selected countries. Namely, over the last 12 years, 1991-2003, as indicated by data shown in Table 9, a total of 370,945 first-year students were enrolled in Croatian institutions of higher education[4], while as few as 117,527 students graduated in the same period, which makes a mere 31.7% of the total number of enrolled first-year students. Column 4 of Table 9 shows the indicator for the "proportion of graduated students in the total number of enrolled

[4] *According to methodology of the State Bureau of Statistics, institutions of higher education encompass all colleges, universities and art academies in the Republic of Croatia.*

freshmen students six years after entry". According to data on the average length of studies, Croatian university students spend on average 6-7 years studying. We may observe that over the last six years the proportion of graduated students six years[5] after entry in the total number of students is at a level of about 40%, which leads us to the conclusion that a large number of students actually never finish their studies. All this indicates that the tertiary education system in Croatia in inefficient and uneconomical. Such dynamics of the number of graduated students will make it very difficult for Croatia to attain the levels of human capital that exist in countries of the European Union.

Table 9. **Total Enrolled Students, Freshmen Students and Graduated Students at Croatian Institutions of Higher Education**

| Year | Total number of students enrolled in higher education | Enrolled freshman students | Students graduated from higher education | Proportion of graduated students in the number of enrolled freshman students at six years after entry |
|---|---|---|---|---|
| 1991/92 | 68,720 | 26,024 | 8,680 | |
| 1992/93 | 75,514 | 27,536 | 7,856 | |
| 1993/94 | 80,410 | 33,162 | 8,275 | |
| 1994/95 | 80,185 | 31,057 | 8,394 | |
| 1995/96 | 84,208 | 31,599 | 9,298 | |
| 1996/97 | 85,752 | 32,131 | 11,311 | 43.5 |
| 1997/98 | 90,021 | 35,712 | 11,460 | 41.6 |
| 1998/99 | 91,874 | 34,939 | 13,286 | 40.1 |
| 1999/00 | 96,798 | 39,558 | 13,315 | 42.9 |
| 2000/01 | 100,297 | 41,524 | 13,510 | 42.8 |
| 2001/02 | 107,911 | 44,038 | 13,810 | 43.0 |
| 2002/03 | 116,434 | 47,225 | 14,868 | 41.6 |
| Total | | 370,945 | 117,527 | |

*Source: Statistical Yearbook, Central Bureau of Statistics.*

The main problems of the Croatian tertiary education in regard to creation of competitive human capital can be divided into three levels: i) quantitative level, ii) organizational/cost level and iii) qualitative level:

[5] *The Table also shows data for colleges, where the average duration of studies is about 4 years as opposed to about 7 years at universities. It therefore seems reasonable to use six years after entry, although seven years would bring similar results.*

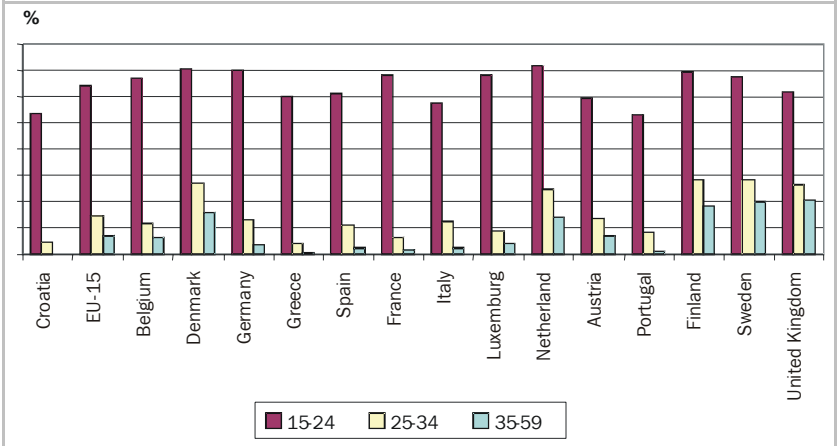
i. comparatively smaller number of persons who complete university and college education than in developed countries of the European Union;
ii. low efficiency of the system with a high number of drop-out students, and an average duration of studies of 7 years at universities, and 4 years at colleges;
iii. no objective indicators have been identified for the quality of tertiary education in Croatia and no objective assessment is made of the quality of work at institutions of higher education.

## 3.4 Lifelong Education

Completion of schooling, irrespective of vocation or school qualifications, does not always provide sufficient knowledge for a successful entry into a working life. Due to changes in the environment and the need for acquiring new knowledge and skills, training for a particular job can never be considered final or sufficient. A need arises for additional qualifications, learning or training for the future changes in the workplace either through *formal, non-formal or informal* education.

Over the last few decades there has been an increasing trend towards continuation of schooling during the working life, and even after retirement. On-the-job or in-firm training is growing in popularity, with emphasis gradually shifting from schooling of young generations to education and training of adults aged between 25 and 60 years, and even older. Reasons for this trend are manifold. First, the changes in the population age structure encourage concentration on the continually increasing 25-60 age group, with the accordingly decreasing number of youth aged between 18 and 20 years. The second reason lies in the short-term, almost instantaneous effects and benefits that employers and society as a whole obtain from investments in education of adults, notably those who participate in the labour market (they can immediately apply in practice what they have learned). Data obtained from the analyses of the Institute for Education show that each year over 10,000 persons change their profession through different retraining and additional schooling programmes (Erceg, 2003). However, compared to EU countries, as few as 0.2 percent of Croatians older than 35 take part in some form of education (Figure 1), while the average figure for EU countries for the same age group is about 7 percent.

Figure 1. **Participation in Education of Persons Aged 15-59 Years in EU Countries and Croatia**




*Source: Central Bureau of Statistics and Eurostat, data from a labour force survey. Data unavailable for Ireland.*

One of the principal reasons for this is a yearlong neglect of the area of lifelong education and adult education. A research by the Institute of Economics, Zagreb (Marušić, 1999) has shown a generally unsatisfactory situation of the human resources function[6] in Croatian enterprises. In comparison with the European Union, Croatia ranks particularly low in the area of *motivation, permanent education and management development.* About 200 surveyed managers in charge of human resources and manager functions stated that the situation for these three groups of functions is only partially satisfactory in just 16 percent, 38 percent and 22 percent of companies or institutions respectively. This research also provides some insight into cofunding of additional forms of employee education and training in Croatian companies. Croatian companies seem to participate very little in financing of additional forms of education and training of their employees, which additionally explains the data shown in the previous figure. A 2003 research (Pološki-Vokić and Frajlić, 2003) performed on a representative sample of Croatian companies has also revealed a poor situation in regard to investments in employee

[6] *The human resources function includes planning, recruitment, job introduction, development, education, promotion, motivation, etc.*

education. Of the total number of companies in the sample, 46.6 percent provided additional training to none of their employees in 2002.

From the above, it is clear that in Croatia no consistently defined framework is available for the promotion of development of lifelong education, and hence no consistently defined financial framework. Adult education in Croatia is the most neglected and least developed part of the educational system. In future, significant human and financial resources would have to be dedicated to the development of this segment of education. Incentives have to be introduced, and some have already been proposed in the National Employment Action Plan, which has been prepared in keeping with the guidelines of the European Employment Strategy. Some of the measures proposed in the National Employment Action Plan regarding development of life-long learning are:

a) to include adult education as an integral part of education policies;
b) to create conditions for tripartite participation in funding of lifelong education - by individuals, employers and government;
c) to modernize educational institutions in order to better meet the educational needs of adults;
d) as part of active employment policy, to continuously finance education and training programmes for the long-term unemployed in order to increase their employability;
e) to organize and fund a media campaign with the aim to raise the public awareness of the importance of education and lifelong learning.

## 4 Investments in Human Capital in Croatia

So far, the economic growth in Croatia was for the most part based on a strong growth of domestic consumption, both individual and public. Such development concept, together with intense opening-up of economy, has stimulated a strong rise in imports, with simultaneously stagnating exports. The competitive position of Croatia's economy has worsened for a number of reasons, one of them being slowness in creating a modern, quality labour force and hesitation in performing reforms in education. According to the results of a Global Report on Competitiveness 2002-03 survey, education and further training sectors have been

assessed less favourably than the assessment of overall Croatian national competitiveness with an average score of 3.77 (on a 1-7 scale) and an average ranking of 60. In education and further training, Croatia is considerably lagging behind not only the high scores of EU countries (average 5.19), but also behind the five transition countries whose average score is 4.59 (Czech Republic 5.01; Hungary – 4.76; Slovenia 4.64; Slovak Republic - 4.54; Lithuania – 4.02) (National Competitiveness Committee, 2002).

In the past period since gaining independence, Croatia has failed to significantly increase the share of public expenditure for education and formation of human capital in GDP. On the other hand, in recent years, in particular since publication of the census data, professional circles have been increasingly warning that Croatia's backwardness in education and the quality of its educational system could produce negative long-term consequences and lead to an even greater relative lagging behind the countries of the European Union.

If expenditure on education of OECD countries and the European Union is used as a comparative level that Croatia should strive to achieve, then the conclusion to be drawn is that Croatia ought to increase its spending on education. Namely, in the consolidated general government budget 1997 the share of expenditure on education in GDP amounted to 3.5 percent, while in 2001 this share rose to the still insufficient 4.2 percent of GDP as against 5.5 percent, which is the average for OECD countries, and 5 percent – average for EU-15 (Education at Glance, 2003; Education across Europe, 2003). Lower proportion of public expenditures for funding educational needs and human capital formation does not result from a generally lower share of public expenditures in GDP. Quite the opposite, Croatia has a larger share of public expenditure in GDP than many OECD and EU-15 countries. The simple explanation is that Croatia spends a relatively smaller portion of its budget on funding educational needs compared to average spending in OECD and EU countries. While over the last decade or so the average consolidated budget public expenditures on educational needs in OECD countries accounted for 12-13 percent of public expenditures, in Croatia public expenditures on education for the consolidated budget 1997 amounted to 7.2 percent, rising to the still insufficient 8.7 percent in 2001.

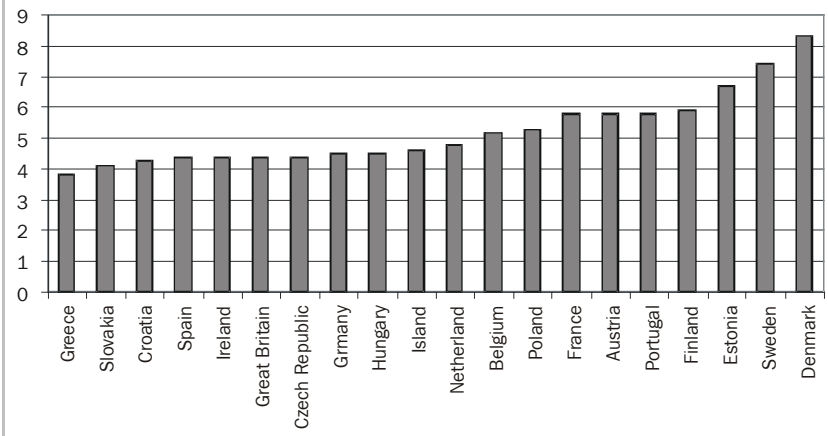
Table 10. **Trends in Total Expenditures of Consolidated General Government and Expenditures on Education**

| Year | Total expenditures | Central government expenditures on education | Local government expenditures on education | Share of expenditures on education in total expenditures (column 3+4/2) | Share of expenditures on education of the consolidated general government in GDP |
|---|---|---|---|---|---|
| | in HRK 000 | in HRK 000 | in HRK 000 | % | % |
| 1997 | 61,058 | 3,563 | 821 | 7.2 | 3.5 |
| 1998 | 70,871 | 4,089 | 968 | 7.1 | 3.7 |
| 1999 | 76,575 | 5,015 | 977 | 7.8 | 4.2 |
| 2000 | 81,036 | 5,785 | 1.017 | 8.4 | 4.3 |
| 2001 | 80,162 | 5,896 | 1.087 | 8.7 | 4.2 |

*Source: Annual Reports of the Croatian Ministry of Finance and Government Financial Statistics, IMF.*

Figure 2 clearly indicates that Croatia is lagging behind many EU countries in terms of public expenditures for education. In 2000, only Greece and the Slovak Republic had a lower level of public expenditures for education. Nevertheless, it is important to note that Figure 2 may create a wrong impression that Croatia is ranking equal in expenditures on education with the countries like Spain, United Kingdom, Germany, the Czech Republic and Hungary where the private sector makes considerable investments in financing education. Namely, according to OECD data (Education at Glance, 2003), in Germany the private sector invests 1 percent of GDP in education, in United Kingdom 0.7 percent, in Spain 0.6, in Hungary 0.6 percent, and in the Czech Republic 0.5 percent of GDP, so that in reality the total expenditures for education in the majority of these countries exceeds 5 percent of GDP.

Figure 2. **Public Expenditures on Education in EU and Transition Countries as Percentage of GDP (2000)**




*Source: Education across Europe, 2003, Eurostat.*

As the data on private expenditures for funding education in Croatia is incomplete, it is not possible to assess Croatia's total private expenditures on education. Nevertheless, these expenditures can be evaluated as being relatively lower than in the above-mentioned countries because private education in Croatia is just developing. Total public expenditures on education lower than in OECD countries result in a lower average level of education of the Croatian citizens and a lower school life expectancy for an average Croatian 5-year-old compared to his/her peers from OECD countries and selected transition countries (Table 11). Namely, according to World Bank's 2002 projection (Berryman and Drabek, 2002), Croatian 5-year-olds are expected to spend on average four years less in school than their counterparts from OECD countries. The expected school life expectancy for Croatian 5-year-olds, according to the projection of the World Bank, is between 12.4 and 12.8 years, which, as shown in Table 11, is less than for reference transition countries – the Czech Republic, Hungary and Poland.

Table 11. **Expected Number of Years of Schooling for 5-Year-Olds in OECD Countries**

| **OECD** | | | | | |
|---|---|---|---|---|---|
| Australia | 20.7 | Hungary | 16.4 | Poland | 16.3 |
| Austria | 15.9 | Island | 18.0 | Portugal | 17.0 |
| Belgium | 18.7 | Ireland | 15.9 | Czech Republic | 15.6 |
| Canada | 16.5 | Italy | 15.8 | Spain | 17.5 |
| Denmark | 17.8 | Korea | 16.0 | Sweden | 20.2 |
| Finland | 18.7 | Mexico | 12.6 | Switzerland | 16.4 |
| France | 16.5 | Netherlands | 17.2 | Turkey | 10.1 |
| Germany | 17.2 | New Zealand | 17.3 | United Kingdom | 18.9 |
| Greece | 16.1 | Norway | 17.9 | USA | 16.7 |
| **OECD average** | **16.8** | | | | |

*Source: UNESCO, www.uis.unesco.org.*

## 5 Conclusion

The data presented in this paper leads us to the conclusion that Croatia is lagging considerably behind the developed EU countries and the reference transition countries in participation rates in pre-primary education. The situation is particularly precarious in lifelong education, while in secondary education vocational education is the most problematic area because enrolment policy and the occupation catalogue is insufficiently harmonized with the needs of the labour market. In tertiary education, the key problem is the high level of system inefficiency, which is characterized by a long duration of studies and a large number of drop-out students. Hence, in addition to increasing the number of enrolled students, the main focus of attention should be on setting up of a more efficient organizational model for management of the system aimed at considerably increasing the number of students who complete their studies and reducing the average duration of studies.

Also, considering the research results presented in Chapter 1 which indicate that the quality of educational system is a key factor of economic growth and social development, it is important to establish internationally competitive and comparable quality standards in education. Private and public investments in education in Croatia are lagging behind those in EU countries and the more

developed transition countries, but an even bigger problem is posed by the fact that the current level of investments is utilized in a very uneconomical manner with a large portion of investments getting "lost" because of the inefficiency of the system. Following from this paper are the following proposals for policy makers:

1) to reform the system of management at all levels of education, notably tertiary education with the ultimate goal of increasing the efficiency and cost-effectiveness of the system as a whole;
2) to increase public allocation for education and formation of human capital, both in absolute and relative terms;
3) to incorporate adult education into education policy as its integral part; to develop departments and staff within existing institutions who will be systematically involved in development and promotion of the importance of lifelong education;
4) to urgently introduce the criteria of international testing and evaluation into the higher education system;
5) to continuously increase the proportion of active working population with graduate and post-graduate education.

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