

# IMPLICATIONS OF CHANGES IN HIGHER EDUCATION ON THE ECONOMY OF THE REPUBLIC OF CROATIA

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Croatia's current major educational reform campaign is aimed at restructuring the school system. One of its central tasks is to diversify higher education in response to the growing divergence in youths' professional orientation and values of choice. Following other reforms during the transition process, higher education in Croatia began a process of transformation, modernization and diversification. When completed, it will fundamentally alter the profile of the traditional university. In these circumstances many discussions about the future of Croatian higher education concern the issues of finance and management. The purpose of this paper is to identify principles that could offer alternative solutions to governance and entrepreneurial management in institutions of higher education.



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## HIGHER EDUCATION AND FEATURES OF DEVELOPMENT

With the start of the globalization process, universities and other institutions, both public and private, are faced with new challenges in fields of education and information systems. Individual faculties and universities must join the global educa-

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tional network in the 21<sup>st</sup> century. This means that the traditional university concept must evolve. A traditional university is faced with new challenges in providing educational and informational services to the interested subjects in the framework of a global educational network, which is equipped with information super highways and modern economic challenges. The challenges are even bigger for an economy in transition such as Croatia's. The recent controversy arises from the collision between autonomy and accountability where there has been an increase in the accountability of academic institutions.

Presently, it is evident that a state with current prerogatives can neither purposefully respond to educational and scientific initiatives and adapt the system of higher education to the newest requirements of science, education and social environment in general, nor have a clear picture of the existing conditions and needs (Ministry of Science and Technology, 2001, Working materials). Because of that, the first and the primary goal of the *New Act on Institutions of Higher Education* must be deregulation of the higher education system in Croatia.

Moreover, the main discussion on the proposal of the new Act revealed the fact that the system of higher education in Croatia is not compatible with the Constitutional provisions on the autonomy of the university and scientific work. Hence, repeated are the errors in interpreting the role of higher education institutions from the previous periods burdened by having to operate under the influence of a strictly established framework of the system and political decisions, which disrupted their internal organization.

By emphasizing the previous limitations it is also necessary to highlight the following basic features of regulation related to the system of higher education, which require a prudent solution if it is intended that the directions of reform, but also of further development of the system, be consistent with the global strategy of higher education's contribution to social development:

- Funding: attempting to find the most appropriate funding model to maximize the financial input for activities of higher education institutions,
- Resources: making effective use of physical and human capital within the system of higher education, and
- Sufficient autonomy, with Government providing limited supervision; better – institution-based management – will lead to the more effective use of limited resources.

#### **Developmental indicators**

Croatia is now facing significant structural and institutional constraints. Within the rudimental financial and real markets,

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players on the market are operating in a chaotic environment (see Table 1). That is reflected through the economic crisis that Croatia is now experiencing (with 4.254,74 US\$ GDP per capita, 22% unemployment rate, 9.834,10 m US\$ of total outstanding external debt, high poverty rate including 18-20% of total population, and significant economic uncertainty: data for 2000 by the Ministry of Finance). By operating under such circumstances, the academic institutions in Croatia continue to face consistent financial constraints. Furthermore, meeting the needs of society with the present academic and service capabilities of any such institution (faculty or any other) has become almost impossible.

Indicator	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Nominal GDP (\$bn)	24.4	20.0	10.0	11.6	14.6	18.8	19.9	19.9	21.7	20.2
GDP per capita PPP (\$)	4,866	4,177	3,959	3,616	5,060	5,610	6,330	6,730	7,040	7,110
GDP (% change)	-7.1	-21.1	-11.7	-8.0	5.9	6.8	5.9	6.8	2.5	-0.3
Industrial production (% change)	-11.3	-28.5	-14.6	-5.9	-2.7	0.3	3.1	6.8	3.7	-1.4
Budget balance (% of GDP)	n/a	-4.8	-3.9	-0.8	1.9	-0.7	-0.1	-0.9	0.9	-1.8
Unemployment (%)	n/a	n/a	27.9	28.9	19.6	16.9	12.4	14.9	17.8	18.0
Average monthly wage (\$)	435.1	402.3	111.0	147.1	359.2	552.0	597.2	595.5	649.5	640.1
Inflation (%)	609.5	123.0	665.5	1.14	-3.0	2.0	3.5	3.6	5.7	4.2
Trade balance (\$bn)	-1.5	-0.5	-0.3	-1.0	-0.9	-2.9	-3.3	-4.9	-3.9	-3.5
Foreign direct investment stock (\$bn)	n/a	n/a	0.0	0.1	0.2	0.3	0.9	1.4	2.3	3.6
Foreign exchange reserves (\$bn)	n/a	n/a	0.2	0.6	1.4	1.9	2.3	2.5	2.8	3.0
Foreign debt (\$bn)	0.0	3.0	2.7	2.6	3.1	3.8	5.3	7.5	9.6	9.9
Population (m)	4.5	4.5	4.6	4.7	4.7	4.7	4.5	4.6	4.5	4.5

Source: Business Central Europe Statistics, *The Economist* (February 2001).

TABLE 1  
Macroeconomic  
Indicators for Croatia

Finally, a good education (like other services provided by social services) does not follow automatically as a consequence of economic growth but really depends on government action. Despite heated debates about the proposal of the new Act, a high level of consent has been reached with regard to the importance of higher education as a source of greater income and employment in the development of the national economy.

Expectations by the academic community in Croatia are based on recommendations of the international institutions, which ascribe the function of ensuring the needed educational level of the active population to universities. Qualifications supply must be combined with high-level knowledge and skills, with courses and content tailored to the needs of the economy (Delors, 1996, 1999). Because of that, universities should be central to the higher level of the system for:

- Preparing students for (specialized) work, and professional/scientific research;
- Providing highly specialized training courses adapted to the needs of the expected economic and social life. This

includes adjustment of those programs, which would enable for continuous improvement of employees consistent with the *lifelong learning strategy*;

– Being open to all: all the choices should be predicated upon the basic principle of equality of opportunity, and

– Fostering international cooperation. Discussions about comparability between the universities and faculties across various states (and with it, across various systems of science and higher education) should be directed towards overcoming the differences in diverse experiences and in technological equipment.

The macroeconomic impact on education is strong: individuals with better education tend to achieve greater success in the labor market, so economies with higher enrollment rates and years of schooling appear to be, more dynamic, competitive in global markets, and successful in terms of higher income per capita (IBRD, 2000).

### **Educational indicators**

Considering that the organization of a higher education institution mostly depends on the type of academic/professional/vocational program, the differences between institutions with identical curriculum should be observed on the basis of specific results achieved. The indicators of differentiation among institutions, in relation to existing forms of organizational models, encompass three fundamental areas:

1. *Types of institution*, according to their founder (public or private higher education institutions);

2. *Organization structure*: academic/professional/vocational program, selectivity in students enrollment and selective approach to the choice of not-obligatory textbooks, teachers/professors qualifications, students and teachers fluctuation, and international co-operation, and

3. *Governance*: decentralization in governance and political behavior, academic freedom, promotion of the quality of higher education institutions and the higher education system as a whole.

The system of higher educational institutions must be flexible if social effectiveness is a goal of its reform. Rapid changes in the structure of educational programs, finding opportunities for introducing innovated program contents and the adjustment of the system reflect the labor market requirements. Thus, it should be emphasized that there are also expectations from the Croatian system of higher education, such as: competition, well-defined standards, well-defined links with other sectors (research, technology etc.), and a coherent and rational approach toward management.

### Higher education institutions

One of the basic methodological requirements in comparative research of educational systems is the determination of the organizational peculiarities and hence, the comparability of educational institutions. Recognizing the nature and legitimacy of diversity within various educational systems helps to ensure that there are fewer gaps in what the system can provide, while preventing duplication of effort (IBRD, 2000). Under current legal frameworks these are the following types of institutions in Croatia at this time:

a) *Public institutions*: universities (with their organizational units: faculties, academies of arts and departments, or only departments; a public school of professional higher education may exceptionally operate within a public university), and public polytechnics;

b) *Private non-profit institutions*: institutions of higher religious education (according to founder principle), and

c) *Private for-profit institutions*: private higher education institutions accredited by the Ministry of Science and Technology; who has a license for the commencement of operations must include in its title "with publicly recognized rights/accredited".

Data on higher education development in the period from 1991/92 to 1999/2000 are presented in Annex 1.

## PROJECTIONS OF CHANGES IN HIGHER EDUCATION

### Tuition

The analysis of the possible impact of upcoming higher education reform upon changes in the number of students at Croatian Universities should be primarily based on economic trends. Under conditions of high unemployment (which is one of the highest among the countries in transition) and diminishing purchasing power of households (due to high taxes and high prices of primary goods) the decisions of individuals for enrollment in higher education should be viewed as sacrificing present consumption for the realization of a higher income in the future, hence it should be viewed as an investment.

Once the secondary school level of education is earned, the possibility of further choice is limited to the continuation of education or joining the labor market. In case of joining the labor market with the acquired level of abilities and skills expectations from the future (lower) returns are limited. The possibility of initiating one's own business, as before 1990, represents a real option only to a minor number of persons between the ages of 18 and 25 today.

Under such circumstances the continuation of studying constitutes a logical choice. Results of the study on economic vulnerability and social welfare in Croatia show that highly

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educated individuals tend to be less exposed to poverty risk (World Bank & Government of Croatia, 2000). Persons with elementary school education constituted as many as 40% of all the poor in the year 1998. This information indicates a correlation between the need for education of an individual and a safer future. The poverty risk in Croatia is directly tied to the low level of human capital (education) and limited opportunity for employment. Opportunity for employment is greater and more favorable for highly educated persons.

Student structure according to enrollment status	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99	1999/2000	99/00:93/94 7/1 (Index)
	1	2	3	4	5	6	7	
Full-time students								
a) with subsidy from MST	72 648	69 160	65 353	64 244	60 375	58 330	63 044	86,78
b) personal needs	3395	5171	10 347	11 069	13 617	15 265	17 463	514,37
Part-time students	6288	5743	8052	9378	15 669	10 493	18 753	298,23
Total	82 331	80 074	83 752	84 691	89 661	84 088	99 260	120,56

\* with subsidy from MST – students with the admission fee covered by the Croatian Ministry of Science and Technology

\* personal needs – students paying the admission fee by themselves

Source: Ministry of Science and Technology, Republic of Croatia, Department for Higher Education (2001).

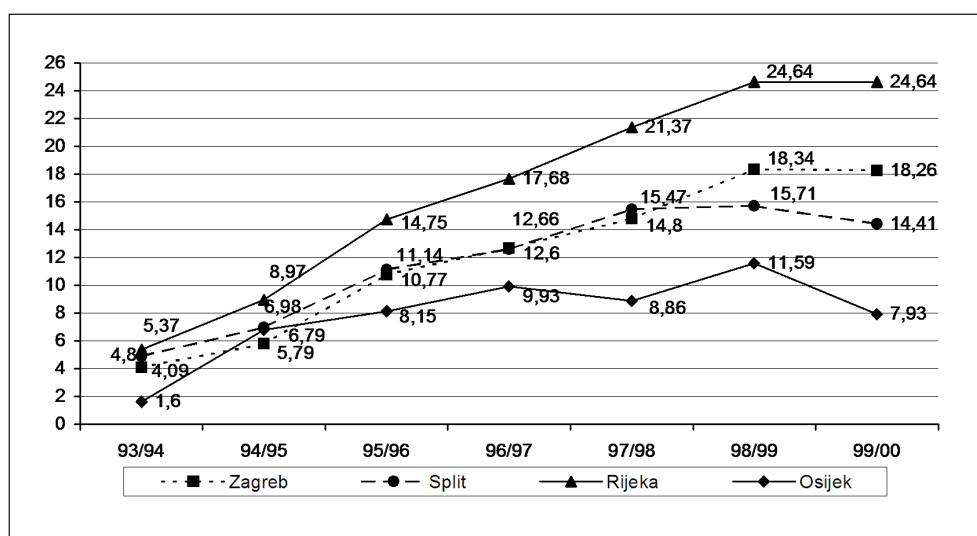
TABLE 2  
Number of students at institutions of higher education in Croatia for the period from 1993/94 until 1999/2000

Over the period from 1993/94 until 1999/2000, the total number of students matriculated to higher institutions of learning in Croatia marks an increase of 20,66%. With a tendency of decrease in the number of active population, the current level of unemployment, low purchasing power and low share of private costs of education (around 0,7% of GDP), the recorded increase comes as no surprise. However, the fact that opportunities for education of the poorest segment of population in Croatia largely depend on social transfers, which need to provide access to education for the poorest segment of population, should be mentioned. Estimates indicate that out of a total amount of public outlays for social security that are allocated for education (in Croatia that is 3% of GDP according to data from 1998), the poorest 8,4% get around 6% of those funds, which facilitate access of the poor to educational services (World Bank & Government of Croatia, 2000: 25). Nevertheless, social investment remains one of the most significant sources of social progress and development, "more so for it could be combined with greater emphasis on work-fare motivation" (Zrinščak, 2000: 241).

### The structure of enrollment

According to data on structure of students enrolled in higher education institutions it is possible to assess the effects of introducing tuition on changes in the number of students. De-

creasing the enrollment quotas for students whose tuition is directly financed from the budget (full-time study with subsidy from Ministry of Science and Technology) did not negatively affect the total number of students enrolled in institutions of higher learning. On the contrary, a permanent increase in the total number of students enrolled in Croatian Universities has been recorded over the observed period. At the same time, within the structure of studying according to the status of studying (a) full-time with subsidy from MST, b) full-time paid by students themselves and c) students studying while simultaneously working) significant changes occur to the "detriment" of studying financed from the budget (Annex 2).



Source: Ministry of Science and Technology, Republic of Croatia, Department for Higher Education (2001); authors' calculation.

FIGURE 1  
 Trends of changes in share of full time students at Croatian Universities who pay college tuition ("personal needs")

The decrease in the number of students enrolled at Government cost has been compensated by an increase in the number of enrolled students who pay their tuition by themselves (personal needs and part-time students). Over the same period, the average annual rate of decrease in the number of students enrolled at the expense of the State amounted to 2%, while the average annual rate of increase in the number of students, who finance their study with their own funds amounted to 26,36% (personal needs) and 16,89% (part-time study). In the same period, the average cost of studying for personal needs per academic year amounted to around 1000 – 1500 DEM, while for part-time study the average cost amounted to around 500 – 700 DEM. Costs of education subsidized by the State amounted to some 3 – 4% of GDP for the period. Of the total State educational expenses, 0,5% was allo-



cated for educational expenses paid by the State and which are received by the poorest 20% of the population while 0,2% was allocated for 8,4% of the poorer segment of the population (World Bank, June 2000).

The announced reform of higher education, which was supposed to be included in preparations for the academic year 2001/2002 (but it has been temporarily postponed due to the beginning of the second round of public discussion and coordination of attitudes between the Ministries and universities) partly relies on the introduction of mandatory payment of tuition for all students. The average costs of study per academic year are estimated at around HRK 8.000 per student. This amount is also estimated to be the total (average) amount of tuition at institutions of higher education. With expected changes in the regulatory framework and the introduction of the tuition system, the State also plans to form the tuition credit system, which would replace the current subsidy from the Ministry.

Authors expect that introduction of tuition will not have greater impact on studying at institutions of higher education. The data in Table 2 show that a decrease in the participation of the State in subsidizing studying at institutions of higher education was not accompanied by a decrease in the number of enrolled students. On the contrary, an increase in the number of enrolled students has been recorded, so that the number of students financed by the Ministry has been substituted but also increased by the number of students who pay for the costs of studying.

Hence, it is possible to assess that *after the introduction of reforming changes in higher education systems and introduction of tuition there will be no decline in the number of students getting educated at institutions of higher education in Croatia*. Due to unfavorable macroeconomic trends (present as expected), and by adjustment to the theory of permanent income, the households are ready to give up their future consumption in order to afford education for their children. Results of research on attitudes towards privatization in education show that as much as 93,5% of the parents choose private school independently of the (un)availability of financial support for education, although they assess the level of monthly needs coverage with regular earnings to be at 87,72% ( $P=0.9484$ ,  $SE=0,0855$ ; Krbec, 2000).

The second important factor, which makes the expectation of a decline in the number of enrolled students at institutions of higher education unrealistic, is the exceptionally low cost of education (tuition), which is, in comparison to the European average, far lower and it does not represent a significant (over 30%) burden on the income of households in Croatia.

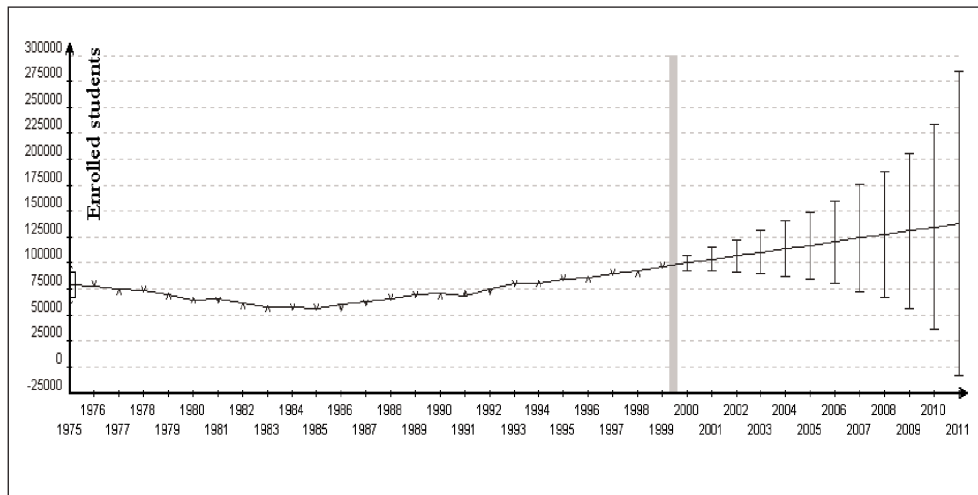


With applied the double exponential smoothing model (linear trend) and function of the form:

$$X_t(h) = S'_{t-1}(2 + \alpha / (1 - \alpha)) - S''_{t-1}(1 - \alpha) \quad (1)$$

$X_t(h)$  = projected number of enrolled students,  $\alpha$  = smoothing constant,  $S_t$  = observation for time t.

With the model above we forecasted the number of enrolled students at institutions of higher education in Croatia until the year 2011. The forecast of changes in the number of students enrolled in institutions of higher education in Croatia under the assumption that the tuition system is implemented for the academic year 2002/2003 is shown in Figure 2.



Interpretation: \* crosses represent one-step-ahead-forecast predicted values; vertical lines 0,95 confidence limit.

Source: Ministry of Science and Technology, Republic of Croatia, Department for Higher Education (2001); authors' calculation.

FIGURE 2  
 Forecast of the number of students enrolled at institutions of higher education

Nevertheless, the possible factor, which could change the forecasted changes from Figure 2, concerns the readiness of children to continue with education after completing secondary school.

Judging from the data on net rates of enrollment in secondary school education Croatia falls behind other transitional and European economies, which perhaps indicates limited access to higher education for children from poorer families. The authors think that a decline in the net rate of secondary school enrollment is primarily the consequence of negative changes in the labor market and interdependency between the average wage and the level of education. However, the interesting information not widely present around

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the world is that students after completing university education continue their graduate studies because they cannot find a job. Such changes are possible today due to low costs of graduate programs which are at about 5.000 DEM. The students, once graduated from the universities, suppose that they will not be able to find a job on the job market and that it pays more to complete the graduate study while they wait for employment. The authors think that the same motives lead pupils graduating from secondary schools, which unlike the previous generations of students, think that it does not pay to invest in further education under the circumstances of reduced employment opportunities.

### IMPLICATIONS OF CHANGES IN HIGHER EDUCATION ON THE ECONOMY OF THE REPUBLIC OF CROATIA

Numerous changes in the educational system of the Republic of Croatia over the long-term period from 1952-1999 did not serve the purpose of economic growth. The quality of individual educational systems was measured in terms of quality of educational offer, by monitoring the needed/disposable number of teachers included in the processes of education, which could satisfy the expressed needs for education. It is surprising that the number of students included in the educational process in the Republic of Croatia was on the level of developed countries, although the GDP of Croatia was much lower in comparison to the GDP of observed countries (Croatia: 4.800\$ in comparison to the average of 15.358 \$ in developed countries) with significantly lower appropriations for needs of education in Croatia: 5,3% of GNP in comparison to the average 5,6% of GNP in high income countries, but Denmark 8,2%, Sweden 8,1%, France 6,1%, Austria 5,7%, United Kingdom 5,4% etc.: data from World Bank, 2001).

⇒ TABLE 3  
Long-run growth  
sources in Croatia  
1950-1990

	Source of Growth 1950 – 1990	
	Average annual growth rate of output	Percentage Distribution
Real output growth	4,93	100,0
Total factor inputs:		
Capital	2,2	44,6
Labor	2,48	50,2
Human capital	0,55	11,1
Technological progress	- 0,29	- 5,9

Source: Data from the Croatian Bureau of Statistics, annual report publication for 1950-1991, authors' calculation.

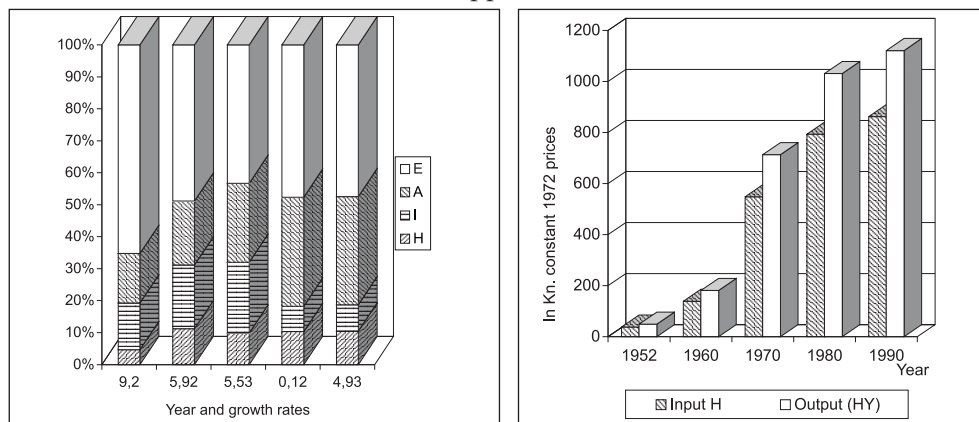
Over the 40-year-period of growth, more than 50 percent of the growth in real output came from the use of more re-

sources, mainly labor but also from the use of more capital. The growth rates recorded in Croatia prove the classical growth theory, which is based on physical capital and labor as the main sources of growth. Human capital and advances in knowledge had only a minor or even negative impact on output because of the inverse investment process in the R&D area.

The negative share of technological input proves the long-term stagnation of Croatian economy. The direct consequences of such growth constraining macroeconomic policy are reflected in inadequate and low rates of growth (between 2 and 5%) for a middle-income country, such as Croatia. Examining the factors' contributions in output share for the 1952-1990 period in Croatia, we estimated that the share of human capital in GDP increased significantly from 3,06% in 1952 to a level of 11,17% in 1990. If we look at the growing share of human capital as shown in Figure 3, we would be prompted to erroneously conclude that human capital has had and will continue to play only a minor role in the economic development of Croatia. This statement supports the conclusions reached by the critics of human capital's role in the economic development of the country, who claim that it has to be minor compared to the role of physical capital (due to the limited human capital stocks of the country). However, Figure 3a clearly demonstrates the opposite.

FIGURE 3  
 Factors Share in  
 Croatian GDP Growth  
 Rate 1952-1990

FIGURE 3A  
 Human Capital  
 Returns in Croatia  
 1952-1990



Interpretation:

E = employment; H = human capital; A = fixed assets; I = gross investments.

Source: Data from the Croatian Bureau of Statistics, annual report publication for 1950-1991, authors' calculation.

Not only have we proved that an adequate level of human capital stock was reached in Croatia even when it was a socialist country characterized by low incomes and allocations for education, but also that economic efficiency of investment is much greater with regard to human capital than with re-

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gard to physical resources. The potential for returns from education largely exceeds that of other factors'. If all growth factors increased by 10% the amount by which an output would increase would vary conditionally upon individual factors' returns and their efficiency. Figures 3 and 3a show that of all available growth factors only one – human capital – exhibited increased returns. An increase in human capital resulting from a 1% increase in educational expenditures will increase output (in this paper measured by the change in total Croatian GDP) by 1,3%. Such increases in scale bring enormous benefits through better labor productivity, increased efficiency and resource allocation along with the overall growth of the Croatian economy. Considering this fact, the slow growth of Croatian economy in comparison to other European countries for the period 1952-1990 can be explained. Diminishing returns of labor caused by the obsolete technology and declining labor productivity (due to lack of investments in human resources) in addition to the existence of diminishing returns to fixed capital, contributed to the resulting economic slowdown in Croatia.

Unfortunately, the importance of education (especially of higher education) in the future economic development of Croatia continues to be ignored. This is confirmed by the data about projections of GDP growth for the year 2001. It is expected that the rate of GDP growth in 2001 will be at around 4%, while the share of education in GDP will drop by -0,2% with a forecasted decrease in educational GDP by -3%. The consequences of low investments and low capital expenditures in education, as well as the labor market's lack of flexibility in offering opportunities to highly trained experts to use and demonstrate their abilities are evident from the ratio of human capital and GDP. The effects of impact of higher education's reform on changes in GDP have been simulated with implementation of a dynamic model. The results of simulation show that the upcoming reform of higher education and introduction of the tuition systems will not have significant impact on economic trends in Croatia over the next development period. Economy trend and student enrollment forecasts are based on the historical data on human capital and vital statistics in Croatia for the period 1950-2000.

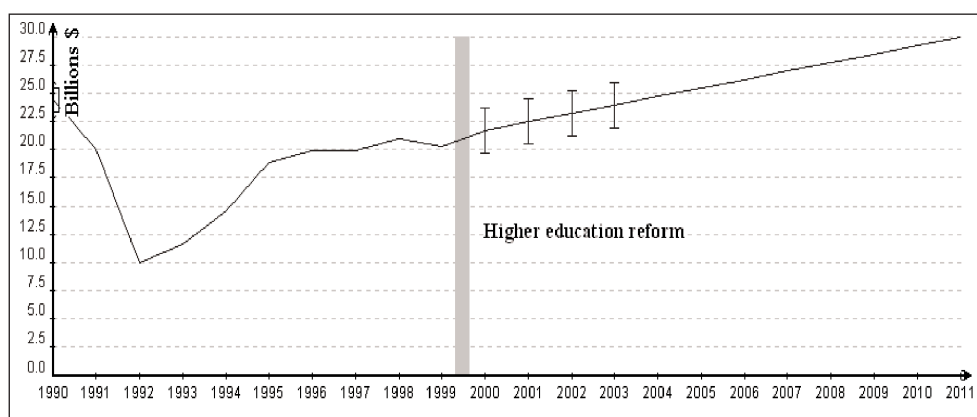
The expected average annual growth rate of Croatia's GDP is estimated at around 3,2% for the period until the year 2011. The neutrality of educational reform on economic trends is evident from the low expected rate of GDP growth if we know that the social rate of return on investments in education in Croatia is around 30% (Škare, 1996). The neutral effects of reform on economic trends are a consequence of student population's inelasticity to the introduction of tuition, due to low costs of education and holding the State transfers

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for educational needs of the socially (economically) disadvantaged population (social loan financing of education). Positive effects from the expected increase in the number of students enrolled in institutions of higher education will also be omitted, due to the non-efficient labor market (lack of earnings profile), unemployment, technical backwardness of the educational system, low rates of return on investments in education for individuals. Multiplication effects of human capital will not be reflected in the increased share of GDP growth because quality personnel (labor offer), due to low demand for labor (employers' needs), will not be able to use their skills and abilities on jobs that are appropriate for them, which will result in a lack of "learning by doing" effects.

● FIGURE 4  
Effects of the Higher  
Education Reform on  
GDP



\* the line shows GDP forecast for Croatia, vertical lines the introduction of the higher education reform and consequently its simulated impact on the future GDP growth

Source: Data from the Croatian Bureau of Statistics, annual report publication for 1990-2000, author's calculation.

We may conclude that over the next period of development, in addition to radical changes in the system of financing, Croatia will *retain the appropriate level of human capital*, despite the fact that high rates of return (peculiar to endogenous growth models) will not occur even in human capital. The reasons for this should be sought in estimates of future growth, which will continue to be based exclusively on low educated, labor intensive and technologically outdated production processes.

## AUTHORS' SUGGESTIONS – INSTEAD OF CONCLUSION

According to the 1993 Act and the principles of the Council of Europe's Legislative Reform Program, the Ministry of Science and Technology has already implemented a separation of university courses of study from professional courses of study. The provisions regarding public higher education institutions stipulated by the Higher Education Act also apply to

private higher education institutions unless otherwise ordered by Act (Ministry of Science and Technology, 2001). Thus, the following results of the system reform are expected:

– Introduction of the competitive spirit among (program similar) institutions of higher education. Besides the fact that competitiveness promotes beneficial innovations and overall quality improvements, it requires a high level of the higher education institution's autonomy in all parts of its internal organization.

– Guaranteeing the system's flexibility with the objective of increasing the effectiveness of education as a public, but also as a private asset. The contemporary requirements for adaptable institutions of higher education assume scholarly interaction within and between countries, frequent curriculum reviews, and strong connections to the world stock of knowledge (i.e. through substantial investments in Internet access, where the CARNet = Croatian Academic and Research Network is a very well-organized agency responsible for the entire academic network in Croatia).

– Introduction of precisely established (international) standards, which – according to the Sorbonne Declaration – should enable the "Harmonization of the Architecture of Higher Education in Europe" (originally Joint Declaration on Harmonization of the Architecture of the European Higher Education System, 1998) and a kind of educational process standardization. The objectives of European Credit Transfer System (ECTS) are as follows:

– Recognition and comparability of academic levels and introduction of supplements to Diploma, which need to contribute to simplification of the procedure for employment and international competitiveness of the European System of Higher Education

– Acceptance of the system based on two educational cycles: undergraduate and graduate, whereby the first (academic) level equals to that, which is considered as the needed level of qualification for the European labor market

– Stimulating the widest possible exchange of students through the credit system, but also the inclusion of life-long learning, which should help in overcoming the consequences of economic restructurings (on the example of transitional countries), i.e. the risk of structural (un)employment.

– Increase in the mobility of students and teachers/researchers, by recognizing and evaluating the period they spent enrolled in programs outside the home institution of higher education.

– Improvement of European cooperation in insuring the needed quality of higher education with application of the comparable criteria and accepted methodology.

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- Improvement of the labor market mobility in Croatia.
- Increase in the human capital stock and student enrollment rate.
- Low economic growth.
- Promotion of the "Europe of knowledge" concept, accepted European dimension in the higher education system in the process of developing the curriculum of higher educational institutions in Croatia.

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## ANNEX 1

### Higher Education System in Croatia (basic analytical elements)

Types of institution	ISCED									
	'97 <sup>1)</sup> level	1991/92	92/93	93/94	94/95	95/96	96/97	97/98	98/99	99/2000
Educational institutions										
Non-university colleges	5	3	3	3	3	3	2	2	1	1
Polytechnics	6	...	...	...	...	...	...	2	7	7
Schools of higher learning	6	...	...	...	...	...	...	7	20	20
Faculties, academies of art and institutions of higher religious education	6	54	58	60	61	62	62	67	66	66
<i>Total number of educational institutions</i>	5+6	57	61	63	64	65	64	78	94	94
Students enrolled										
Non-university colleges	5	1839	2326	3362	2660	4141	1000	848	269	146
Polytechnics	6	...	...	...	...	...	...	702	6026	12 140
Schools of higher learning	6	...	...	...	...	...	...	5702	8713	10 777
Faculties, academies of art and institutions of higher religious education	6	66 881	73 188	77 048	77 525	80 067	84 752	82 769	76 866	73 735
<i>Total number of students</i>	5+6	68 720	75 514	80 410	80 185	84 208	85 752	90 021	91 874	96 798
Enrolled students per 1000 inhabitants	5+6	14,3	15,8	16,8	16,8	17,6	19,1	19,69	20,40	21,32
Teachers										
Non-university colleges	5	122	104	101	79	74	77	72	91	207
Polytechnics	6							-	389	1041
Schools of higher learning	6							-	317	453
Faculties, academies of art and institutions of higher religious education	6	6303	6267	6045	5814	6251	5953	6181	5951	5862
<i>Total number of teachers</i>	5+6	6425	6371	6146	5893	6325	6030	6253	6748	7563
- Ph.D. (%)		43,5	44,0	46,9	50,1	48,5	52,3	54,0	55,0	55,2
- Full time (%)		86,7	87,8	87,1	87,2	86,0	86,7	83,6	78,5	70,0

Source: *Statistical Yearbook 1992 to 2000*.

## ANNEX 2

### Enrollment status of students at Croatian Universities in the period from 1993/94 until 1999/2000

Status	1993/94 1	94/95 2	95/96 3	96/97 4	97/98 5	98/99 6	99/2000 7	99/00:93/94 (%) 7/1
University of Zagreb								
Full-time A	89,98	89,23	79,54	79,24	70,29	68,72	64,76	82,62
Full-time B	4,09	5,79	10,77	12,66	14,80	18,34	18,26	512,85
Part-time	5,93	4,98	7,80	8,11	15,08	12,93	16,90	327,15
University of Split								
Full-time A	82,75	82,14	75,14	71,38	59,89	68,68	61,01	102,63
Full-time B	4,89	6,98	11,14	12,60	15,47	15,71	14,41	409,95
Part-time	12,35	10,88	13,72	16,02	25,41	15,48	23,48	264,63
University of Rijeka								
Full-time A	84,24	78,98	73,38	66,18	61,89	65,18	53,10	69,81
Full-time B	5,37	8,97	14,75	17,68	21,37	24,64	24,64	508,27
Part-time	10,38	12,06	11,87	16,13	17,63	10,19	22,26	237,51
University of Osijek								
Full-time A	90,46	83,38	79,52	73,92	70,54	79,73	72,26	119,30
Part-time B	11,66	6,79	8,15	9,93	8,86	11,59	7,93	1.015,58
Part-time	8,92	9,83	12,33	16,15	21,51	8,68	19,83	331,92

Interpretation: Full-time A – full-time students with subsidy of MST; Full-time B – full-time students – personal needs

Source: Ministry of Science and Technology, Republic of Croatia, Department for Higher Education (2001).

## Utjecaj promjena u visokom školstvu na privredu Republike Hrvatske

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Velika hrvatska reforma obrazovanja koja je u tijeku, usmjerena je na restrukturiranje školskog sustava. Jedan od njezinih ključnih zadataka je učiniti visoko školstvo raznolikim kao odgovor na rastuće razlike u profesionalnim usmjerenjima mladih i vrijednostima njihova izbora. Prateći ostale reforme u tranzicijskom razdoblju, visoko obrazovanje u Hrvatskoj započelo je proces promjena, modernizacije i diversifikacije. Po dovršetku taj bi proces bitno promijenio izgled tradicionalnog sveučilišta. U takvim okolnostima vode se mnoge rasprave o budućnosti hrvatskoga visokog obrazovanja koje uključuju probleme financiranja i upravljanja. Cilj ovoga rada je uočiti načela koja bi mogla ponuditi alternativna rješenja u rukovođenju i poduzetničkom upravljanju u ustanovama visokog obrazovanja.

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## Veränderungen im Hochschulwesen und ihre Auswirkungen auf die Wirtschaft der Republik Kroatien

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Die groß angelegte Reform des kroatischen Hochschulwesens, die derzeit in Gange ist, soll eine Restrukturierung des Schulsystems hervorbringen. Zu ihren Hauptaufgaben gehört die Bereicherung des Hochschulangebots als Antwort auf die wachsende Diversifizierung der Berufsbereiche. Die kroatische Hochschulreform ist eine Folge aller anderen Reformen der Transitionszeit und setzt einen Prozess von Veränderungen, Modernisierungs- und Diversifizierungseingriffen in Bewegung. Mit Abschluss dieses Prozesses wird die traditionelle Universität ihr Aussehen wesentlich verändert haben. In diesem Rahmen werden zahlreiche Diskussionen über die Zukunft des Hochschulwesens in Kroatien geführt und auch die Probleme seiner Finanzierung und Verwaltung angesprochen. Das Ziel dieses Aufsatzes ist, die Grundsätze herauszuarbeiten, mittels deren man alternative Lösungsvorschläge bezüglich Verwaltung und Management in Hochschuleinrichtungen erbringen könnte.