

Human Capital in Human Economics

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Human capital is a microeconomic term referring by definition to the knowledge and skills accumulated by people in the process of their education and training. The pioneer in the field who published 'Human capital' in 1964 is professor Gary S. Becker, a Nobel Laureate (1992) from the University of Chicago (Becker 1993). In his opinion, the new economy has increased the value of education and returns for investment on education. The macroeconomic aspect of education and investment in human capital contribute to economic growth.

HUMAN CAPITAL IN ECONOMIC THEORY AND SOME EMPIRICAL EVIDENCE

Economically we can measure human capital as 'stock' or 'flow' type of indicator, where the first one represents the level of education and knowledge of people and the second reflects the process of education. Highly educated and skilled people have an economic advantage on the labour market earning more, which is a return on their investment in education. The income level is a function of education and experience, highly educated people have a higher price of their skills, thus earning higher income while entering the labour market and experience a more rapid growth during the working life cycle (Samuelson 1995).

In the macroeconomic theory, human capital is among the four factors of economic development in addition to the natural resources, capital formation and technology. Human capital has become the most important among the factors, as the capital goods can be bought, but can be effectively used in the economic process only by well – educated and skilled workers.

The neoclassical model of economic growth is based only on capital accumulation, while other factors such as the quality of labour force, technology and natural resources remain constant. The increase of capital per employee will increase aggregate output per worker and the econ-

omy will move up on the aggregate production function. In the long run neoclassical model leads to a steady state of economy where capital returns become constant and incomes stop growing (Samuelson 1995).

Economic development is connected to the absorption capability that is defined by the quality of the human capital. Growth conflict is a psychological process in which people, due to the lack of knowledge, begin to oppose the progress. Therefore investment in machines and equipment must be necessarily accompanied by investment into human capital. From the economic point of view investment into human capital means education and training of employed people. Educated people are an active factor of economic development (Mankiw 1994).

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However, competitiveness of modern hi-tech postindustrial economy is closely connected to the quality of human capital. Economic development is related to the fast technological development accompanied by ICT development and the flow of information around the world. Economic development is based on the technological development that needs highly qualified and innovative labour force. Technological change shifts the aggregate production function upwards, showing the advances in productivity. Simultaneously the technology development is accompanied by the human capital development that causes second shift of the production function upwards and raising output per worker – labour productivity, together with rising wages and increasing living standards (Samuelson 1995). Research on economic growth has emphasized that human and physical capital are both important in ‘explaining international differences in standards of living’ (Mankiw 1994).

The econometric studies (OECD 2001a) confirm a significant positive impact of human capital accumulation on the productivity (output per employee) and economic growth. Although the human capital theory is clearly defined, some dimensions are more difficult to quantify empirically. The human capital defined as capacity for work has five categories: individual knowledge, experience, skills, capability for work (health), willingness and readiness to work (personality). Some of them can be measured, while others have to be estimated.

The system of national accounts – SNA, includes estimates of national wealth from different aspects: production, consumption, income, capital and financial accounts, but no estimates of human capital or labour accounts. The first attempt has been taken in Australia with experimental measures of the value of the human capital stock with the key notion that ‘the economic value of human capital embodied in individuals

can be expressed as the discounted present value of the lifetime income streams that they can earn by applying their knowledge and skills' (OECD 2001b).

Human capital stock is most often measured by the educational attainment of people according to the personal characteristics like age, gender etc. Another method of human capital stock measurement is observation of labour income paid in a year, assessment of the future income for each group of people according to their educational attainment, to sum the estimated aggregate value of human capital. The static model-based estimate origins from current level of education, while the dynamic model takes into account also the education in process (work-study stage and work stage). The human capital flow is also measured by the observation of people – youth and adults – in the process of education and training.

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HUMAN CAPITAL AND EU DEVELOPMENT STRATEGIES

Human economics signifies the modern economy focused on the increasing role of human capital in the knowledge-based society. This means an observation of economics from a human perspective as an important production factor and is also humane, reflecting a concern for improving working conditions, investment in education and health at work. The human resources development is an important part of all development strategies and has recently been embodied in the policy and reports of most important international institutions: the European Commission, ILO, OECD, the UN etc. Education is a foundation of economic and social development, thus nowadays human capital is intensively discussed not only among researchers but also among politicians. ILO – International Labour Organization (2003) – prepared and discussed on its 2003 conference a report on 'Learning and training for work in the knowledge society' and the report on 'Human resources development and training' is on agenda for the 2004 conference (ILO 2003).

Following the Lisbon strategic goal for the next decade: *'to become the most competitive and dynamic knowledge-based economy in the world, capable of sustainable economic growth with more and better jobs and greater social cohesion'*, the new European employment strategy sets three employment policy objectives (Commission of the European Communities 2003):

1. full employment,
2. improving quality and productivity at work, and

3. social inclusion.

The new European employment strategy sets also ten policy priorities (Commission of the European Communities 2003):

1. active and preventative measures for the unemployed and inactive,
2. job creation and entrepreneurship,
3. adaptability and mobility,
4. promotion of the development of human capital and life-long learning,
5. increased labour supply and active ageing,
6. gender equality,
7. combating discrimination,
8. making work pay,
9. transformation of undeclared work,
10. addressing regional employment disparities.

The concept of lifelong learning is an objective of the European employment policy within the fourth policy priority: 'Promote development of human capital and lifelong learning,' that states: 'Member states will implement lifelong learning strategies, including the quality and efficiency of education and training systems, in order to equip all individuals with the skills required for a modern workforce in a knowledge-based society, to permit their career development and to reduce skills mismatch and bottlenecks in the labour market.' (Commission of the European Communities 2003).

A recently adopted EC document 'Education and training 2010' (Commission of the European Communities 2003) is focused on quality, access and openness of education and training systems. EC DG Employment 'Study on human capital in a global and knowledge based society' (De la Fuente and Ciccone 2003) claims that average level of education by one year represents a 5% increase in economic growth in the short-term and another 2.5% in the long-term. In addition, the positive impact of education on employment, health, and social inclusion has been shown.

Several factors – economic, social and technological – account for the growing emphasis on the human capital (Commission of the European Communities 2003):

- Firstly, in any modern economy today, the production of goods and services increasingly relies on human, rather than physical, capital,

i. e. on its workers' individual and collective endowment of knowledge and skills. For example, Germany's endowment of human capital is today more than twice the value of its physical capital.

- Secondly, in the knowledge and information society the quality of education is increasing and directed towards more active and innovative gaining of knowledge and skills.
- Thirdly, growth of the 'new economy' is also seen as a reason for the expansion of knowledge-based jobs. The idea of a 'new economy' focuses attention on the role of ICT and its impact on technological progress.

HUMAN CAPITAL IN SLOVENIA

The available data from the employment register that we have analysed for Slovenia include people employed by enterprises, small businesses and institutions. The analysis of the data on employed people by the educational attainment show that 21% of them have upper secondary education, 29% secondary education and 50% are skilled or unskilled workers. A closer observation by gender reflects better education of women, as 25% have a university degree, 34% secondary education and 41% have less than secondary education (see Table 1). The employment growth of people with a university degree has been growing steadily, with the secondary education showing a moderate growth, while the number of the employed people with less than a secondary education has a negative trend (see Table 2).

Employment of people with tertiary education is growing steadily. Table 2 presents the structure and growth pattern of the selected three groups by educational attainment divided by gender. The fastest employment growth is seen in the group of women with a university degree, followed by the fast employment growth of man with a university degree, moderate employment growth of men with completed secondary education and zero growth of women with completed secondary education, while a negative employment trend with the lower education can be seen in females.

A similar employment pattern by educational attainment is present also in the other industrialised countries and signifies a transition towards knowledge intensive human economics.

In the new economy – the information society accompanied by the globalization process – education and training are important not only for

individuals, who due to their knowledge and skills become more successful and competitive on a more and more open labour market, but also for enterprises, for which human capital has become an important factor of production. The basic principle is intellectual flexibility and life-long learning of adults. The main reasons for life-long learning can be summarized by the following interrelated functions:

- individual function – individual development and career opportunities,
- economic function – productivity and competitiveness of enterprises,
- social function – higher living standard, social inclusion, decreasing unemployment, cultural progress,
- nacional function – competitiveness of the national economy.

Individual benefits from education and training through better employability, higher productivity, increased earnings, increased mobility in the labour market and by widening their career opportunities. By investing in the human resources enterprises improve their productivity and competitiveness not only on local markets but also on the global markets. ‘The economic performance of 62 world-wide car assembly plants around 1990, measured in terms of labour productivity and product quality (assembly-related defects per vehicle), proved to be closely associated with the presence of three dimensions of business strategy: lean production, team working and innovative human resources management (HRM) practices. Economic growth and social development of countries are invariably associated with large and sustained investments in education and training; countries with the highest incomes are also those where workers are most educated’ (ILO 2003).

Human capital development is important for a successful admission to the European market and competitiveness of the Slovenian economy. Lower educational level of Slovenes is an obstacle becoming EU member state. Because of that education of youth and adults needs to be stimulated by increased investment into human capital. In Slovenia, there are 88.100 students enrolled, which is 60% of the population for 20–24 age group. The number of student has been increasing steadily and has been doubled in the last seven years. 59% of students are women and 41% men.

The more educated young generation with highly qualified human capital flow to the labour market will be intensive and will change the

Table 1: Human capital structure in Slovenia, 1999–2002

Year	University degree		Secondary		Less than secondary	
	M	F	M	F	M	F
1999	15.88%	22.14%	24.05%	33.45%	59.18%	43.80%
2000	16.46%	23.25%	24.32%	33.29%	58.44%	42.95%
2001	16.88%	24.28%	24.86%	33.52%	57.53%	41.70%
2002	17.37%	25.40%	25.15%	33.58%	56.84%	40.59%

Source: sors Employment Register.

Table 2: Human capital growth in Slovenia, 2000–2002

Year	University degree		Secondary		Less than secondary	
	M	F	M	F	M	F
2000	5.49%	6.73%	2.87%	1.15%	0.46%	-0.33%
2001	3.08%	4.27%	2.80%	0.53%	-1.00%	-3.08%
2002	3.51%	4.68%	1.71%	0.25%	-0.65%	-2.61%

Source: sors Employment Register.

employment pattern. Fast growth in the number of students is expected to increase economic growth but will also be reflected in an increase of public expenditures and the introduction of life-long learning. Education of adults in Slovenia is not following the trend of youth education, partly because the LLL concept has not been adopted yet, partly because of the prevailing cultural pattern that adults do not suit to schools bench. However, nowadays once attained knowledge can easily become out-of-date.

CONCLUSION

Following the EC education priorities, the most important issue is to increase investment into education. Thus it is particularly important to increase investment in human capital from public funds, the business sector and individuals.

The second priority is the introduction of life-long strategies, that is the education and training of adults. In the next few years, the education expenditure for adults will increase and account for 5% of labour costs. The Slovenian strategic goal is to double the number of participants to LLL to reach 15% of the working population. Education of adults is not

only an investment made by the individuals, but also by enterprises with a view to promote productivity, competitiveness and a more active ageing. The management in progressive companies who is aware that competitiveness can be only achieved with well educated people, will strive to encourage employees to continue education and training – by entering life-long learning.

Human capital development – the increase in the educational level and flow of highly educated youth on the labour market – does not only lead to welfare and better living standard of individuals, but also leads growth in productivity that accelerates economic development. Investment in human capital represents opportunity for individuals and companies and becomes necessity in the knowledge-based society. Hi-tech intellectual industries need highly educated people. Human (intellectual) capital is the a key factor of productivity. Thus human capital has become in the new economy the only real ‘wealth of nation’.

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