

TIME SPENT FOR EDUCATION – A KEY RESOURCE IN THE SOCIAL AND ECONOMIC DEVELOPMENT

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The main engine of developing is the acquisition of the human capital and also the main source of the differences in living standard of population.

Robert Lucas „Making a Miracle”, Econometrics no. 61, 1993

Abstract

Education - in every sense - is one of the fundamental factors of development. It provides a foundation for the economic and social wellbeing. Time spent in education is the key to increasing economic efficiency and social consistency. Of all the resources, time is the most valued and it can be used most effectively.

No country can achieve sustainable economic development without substantial investment in human capital. Education improves the quality of people's lives and leads to broad social benefits to individuals and society.

According to Gary S. Becker theory of time allocation, in this paper it is investigated some of the aspects concerning the relation between social and economical increasing and investments in human capital trough the role of time spent by Romanian people in education, training and other educational activities. Data used in this paper are generally provided by the time use survey¹.

¹Data source: Time Use Survey – NIS, Romania, 2000

Introduction

Time is an important determinate of an individual's total wealth. Everyone's day is made up of exactly 24 hours, which means that each person has a finite amount of time to spend sleeping, eating, earning a living, studying, taking care of others, home responsibilities and leisure activities. Exploring the trades-offs among these activities allows us to better understand patterns of individual and social wellbeing. Some of empirical experiments demonstrate that a country specificity of country economic development could be evaluated depending on its population level of education. Time use survey represents a good source to provide information regarding time spent in education and other population activities that reflect social consistency and economic efficiency of country. This new information is important because it can be used to inform the debate over the key issues in education field by measuring aspects of the benefits and costs of investment in human capital.

This paper is structured in three parts: a theoretical framework of education and its role to developing the human capital; the second part is a brief analyze based on the time use survey results and the last part is a reflection about the measure in that levels of education have influence on the quality of people's lives. The theory section outlines the essential elements of Becker's theory of time allocation² according with the education and training are the most important investments in human capital.

1. Education and time use: a theoretical framework

Education has always been regarded as a vital factor in achieving the general aims of society. Since education plays a substantial role in accumulating human capital, the economists have been preoccupied on this issue. What is more recent is the emergence of a concept of education as an important factor in economic growth. The term human capital is recognition that people are an important and essential asset who contributes to development and growth, in a similar way as other capitals. The collective attitudes, skills and abilities of people contribute to organizational performance and productivity.

One of the most famous authors in the field of human capital theory is Gary S. Becker (e.g. 1993) who receive the 1992 Nobel Prize in Economic Science, as a pioneer of applying economic analysis to human behavior in such areas as discrimination, marriage, family relations, and **education**. Becker's intent was to demonstrate, both theoretically and empirically, that investment in people was analogous to investment in physical capital, and could be measured in much the same way. Using 1950 census data, he estimated the private rate of return to college graduation at 13 percent, a rate higher than that generally obtainable on investments in physical capital. The result was a powerful analytical model that provided hard economic evidence on the value of higher education in the labor market.

The theory of human capital has created a uniform and generally applicable analytical framework for studying not only the return on education and on-the-job training, but also wages differentials

² Becker, G., *Human Capital. A theoretical and empirical analysis, with special reference to education*, University of Chicago Press, 1964, 1975, 1993

and wage profiles over time. "Persons differing in education also differ in many characteristics that cause their income to differ *systematically*" (Becker, 1975).

The importance of time costs (i.e., of the opportunity cost of time) was also mentioned by Becker in his paper "Economic Analysis of Fertility" (1960). As with schooling, the value of time was regarded as an important determinant of behavior.

Even Becker doesn't explicitly define human capital, following him, other researches focused their researches on time allocation in education and the benefits regarding the quality of people's lives transferring to social and economic benefits of society.

The definition used by Peter Husz is as follows: "By human capital we mean the time, experience, knowledge and abilities of an individual household or a generation, which can be used in the production process" (1998, p. 9). Others only define human capital investment, e.g. Schultz (1992) defines human capital investments as enrolment rates multiplied by the cost of education for one individual. Lucas (1988) measures human capital probably by expenditures on education and "external" human capital, which he believes to be able to measure by calculating the returns to land.

Despite these recent research efforts, the steps of transition from theory to practice have to made.

2. Time Use Survey in Romania: Education Results

The time use survey³ provides an exciting opportunity to construct measures of structure of spending time and to analyze the impact on the returns to social and economical life.

The Time Use Survey is the only data source which shows how much time school-age people spend on study.

In this section will be explored the participation of Romanian population to education in the conceptual framework of harmonized European methodology of time use survey.

The levels of education were grouped as follows⁴:

- ➡ primary or without graduated school (ISCED 1)
- ➡ secondary education (lower secondary education - ISCED 2)
- ➡ vocational, complementary or apprenticeship (ISCED 3)
- ➡ high school (upper secondary education - ISCED 3)

³ *Time Use Survey in Romania* was conducted on a pilot basis in August and September 2000 on a sample of 9018 dwellings, distributed in two independent monthly sub-samples of 4509 dwellings each. As this was the first attempt to conduct Time Use Survey, it was done on a pilot basis in the form of an independent survey. The sample size was dimensioned in such a way that it provided reliable estimates at national and regional level. The sampling design adopted in the survey was two-stage design. Another characteristic of the survey was the uniform distribution of the sample by the days of the weeks, so as each working day had associated a weekend day. The non-response rate was almost 13%. The survey covered residents of private dwellings in urban and rural areas across all counties of Romania. All households within selected dwellings were included in the survey and all persons aged 10 years or older living in these households were in scope. The results are comparable at international level, as the survey was harmonized with similar surveys within the European Union with regard to the concepts, definitions and classifications used, as well as of sampling plan and method of organization and data collection. The survey followed the harmonized guidelines issued by Eurostat, except the fact that it covered only two months in the autumn. (Time Use Survey in Romania, National Institute of Statistics, 2001)

⁴ According to International Standard Classification of Education (ISCED 97)

- speciality post-high school or technical foremen education (post upper secondary education - ISCED 4)
- tertiary education (ISCED 5, 6).

2.1. Formal education

Study⁵⁾ is a preoccupation for 7,1% of the Romanian population, the greatest share being noticed at the children of 10-14 years old (44,7%). Along with age, the participation in formal education⁶⁾ activities decreases. Starting with the age of 25 years, the share of persons carrying out this activity is below 1%.

Table 1. The participation ratio⁷⁾ of the population in the economic activities and education – working days and resting days

		GROUPS OF AGE					%
	TOTAL	10-14 years old	15-24 years old	25-44 years old	45-64 years old	65 years old and more	
ECONOMIC ACTIVITY							
TOTAL	33,5	10,5	27,8	47,4	35,7	19,6	
Male	40,3	11,5	33,0	55,7	43,4	24,9	
Female	27,1	9,5	22,5	38,9	28,8	15,8	
STUDY							
TOTAL	7,1	44,7	15,9	0,8	0,2	0,2	
Male	7,4	44,7	15,9	0,6	0,3	0,2	
Female	6,8	44,7	16,0	1,0	0,1	0,1	

Source: Time Use Survey in Romania, National Institute of Statistics, 2001

It is obviously that there are two thresholds⁸⁾ (marked on the figure 1) of decrease from group of age 10-14 years old to 15-24 years old (the difference registered was 28.8 percentage points) and from 15-24 years old to 24-44 years old (15,1 percentage points).

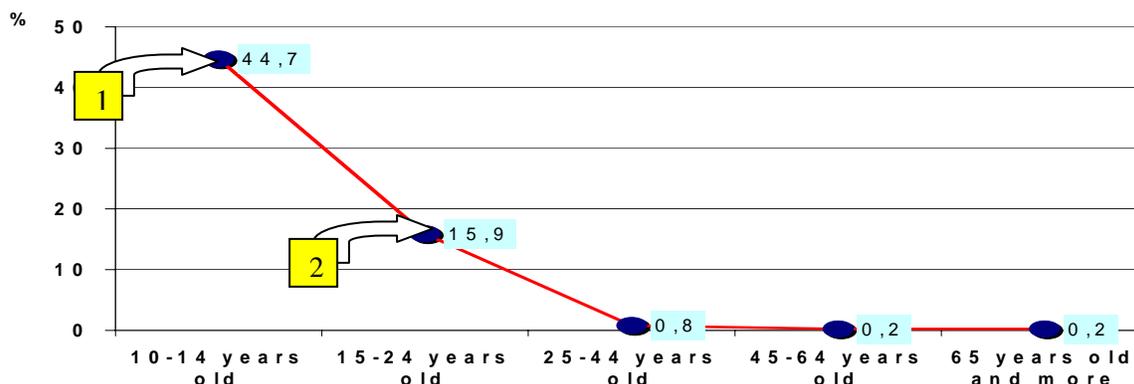
⁵⁾ The study has been accomplished in the educational institutes as part of the national system of education; the time allotted for the study in the free time is not included.

⁶⁾ The term formal education refers to the structured educational system provided by the state for children. In most countries, the formal education system is state-supported and state-operated. In some countries, the state allows and certifies private systems which provide a comparable education.

⁷⁾ The participation ratio of the population in education is calculated as percentage of persons participating in this activity during a day in the total of persons who completed the diary in the same day

⁸⁾ Note: the value of participation rate could be affected by the period of data collection: in August-September the students are in the summer holiday.

Figure 1. The participation ratio of the population in education, by groups of age – working days and resting days



Between sexes there are no differences regarding the participation of population to study, but by region there are noticeable some differences: 8,4% in urban and 5,4% in rural; these are kept at all groups of age.

Table 2. The participation ratio of the population to education by sex, residence area and groups of age – working and weekend days

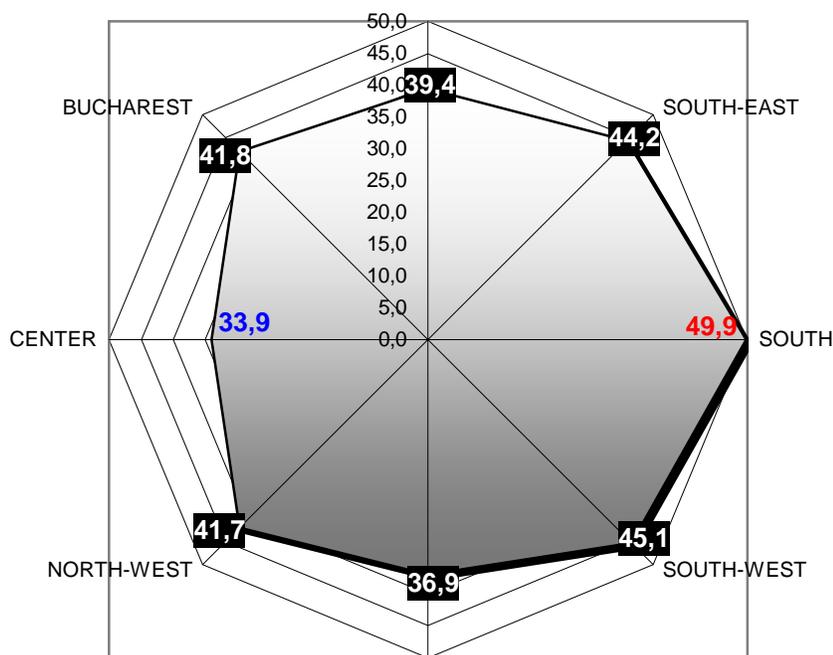
		GROUPS OF AGE					
		TOTAL	10-14 years old	15-24 years old	25-44 years old	45-64 years old	65 years old and over
URBAN							
Male	9.7	51.0	21.5	1.4	0.5	0.4	
Female	9	51.5	22.1	1.9	0.4	0.3	
RURAL							
Male	5.9	39.1	11.7	0.9	0.4	0.1	
Female	5.6	39.7	12.9	1.0	0.1	0.0	

Source: Time Use Survey in Romania, National Institute of Statistics, 2001

By development regions, the participation ratio in study is low in certain regions. In the Central, West and North-West regions the value of this indicator is 33,9%, 36,9%, respectively 39,4%. At the opposite side are the South, South-West and South-East regions (49,9%, 45,1%, respectively 44,2%). In the capital of country (Bucharest) the participation ratio was 41,8%.

The **development regions of Romania** refer to the regional divisions created in Romania in 1998 in order to better co-ordinate regional development as Romania progressed towards accession to the European Union. The development regions correspond to NUTS II-level divisions in European Union member states. Romania's development regions do not actually have an administrative status and do not have a legislative or executive council or government. There are 8 development regions in Romania, named by their geographical position in the country: North-West, North-East, South-West, South-East, South, West, Center, Bucharest.

Figure 2. The participation ratio of the population to education by development regions – working and weekend days



Participation rate to study is higher for the boys aged 10-18 years old than of youth 19 years old and over (56,0% comparing to 30,9%).

The difference is lower for girls into the analyzed groups of age: 20,8 percentage points. Analysing the time spent in education by the level of education of the head of household⁹, the participation rate is the biggest for children who live in household governed by a head having upper secondary education (54,6%). At the opposite the women aged 19 years and over living in a house where the last level of education attempted of the head the household is post upper secondary (18,8%).

⁹ According to survey methodology, a **household** is considered a group of two or more persons that usually live together, being generally related in kinship to each other and that manage (do the chores) together, participating totally or partially at their income and expenses. The person who does not belong to a household and who declares that lives and does her or his own chores is considered to form a single person household. Members of a household are also considered to be the persons left from the locality for a longer period of time (over 6 months), if this person keeps in touch with the family from household he or she belongs to, as well as the military in service, pupils and students that study in other locality, workers left to work elsewhere, prisoners and persons arrested for criminal offences, persons hospitalised temporarily or those from sanatoriums for treatment or recovery from different diseases. The persons that live permanently in habitats of common share (old people home, handicaps home, worker's hostels, sanatoriums) or those who live in lodgings, in pensions or are tolerated; the persons who are hired for household chores, even though they usually eat in the respective household, are not an object of this survey.

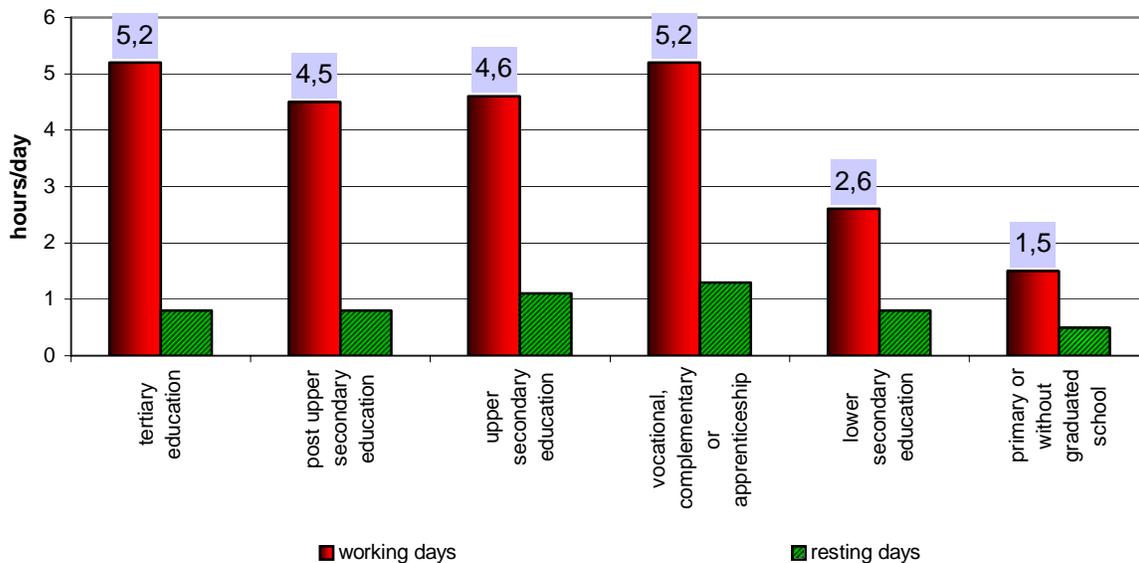
Table 3. The participation ratio of the age school population to study activities by level of education of the head of household - working days

	MALE			FEMALE			TOTAL
	TOTAL	AGE GROUP		TOTAL	AGE GROUP		
		10-18 years old	19 years old and over		10-18 years old	19 years old and over	
TOTAL	51,8	56,0	30,9	53,8	57,6	36,8	52,8
Level of education of the head of household							
tertiary education	44,1	49,1	32,8	57,5	61,8	49,0	50,9
post upper secondary education	44,5	58,5	18,8	54,7	66,0	34,3	49,7
upper secondary education	56,1	63,6	25,7	53,2	60,6	23,2	54,6
vocational, complementary or apprenticeship	52,1	53,6	39,0	54,2	56,9	37,1	53,1
lower secondary education	54,7	56,7	34,7	51,8	50,1	67,9	53,4
primary or without graduated school	48,0	46,7	55,1	49,9	51,7	20,5	49,0

Source: Time Use Survey in Romania, National Institute of Statistics, 2001

Average time of economic activity carried out by the persons with higher school in working days is 4,4 hours higher than that from the weekend days. At the opposite side there are the persons with primary school to whom the difference is only of one hour.

Figure 3. Daily average time of economic activities, by level of education - working days and weekend days



Travels¹⁰⁾ to and from education engage in one day 1,2 hours of a person's time. Men travel more than women (1,4 hours compared to 1,0 hours), this situation being encountered to all groups of age. The group of 10-14 years old is an exception. The girls travel with 0,1 hours more than boys (1,2 hours compared to 1,1 hours).

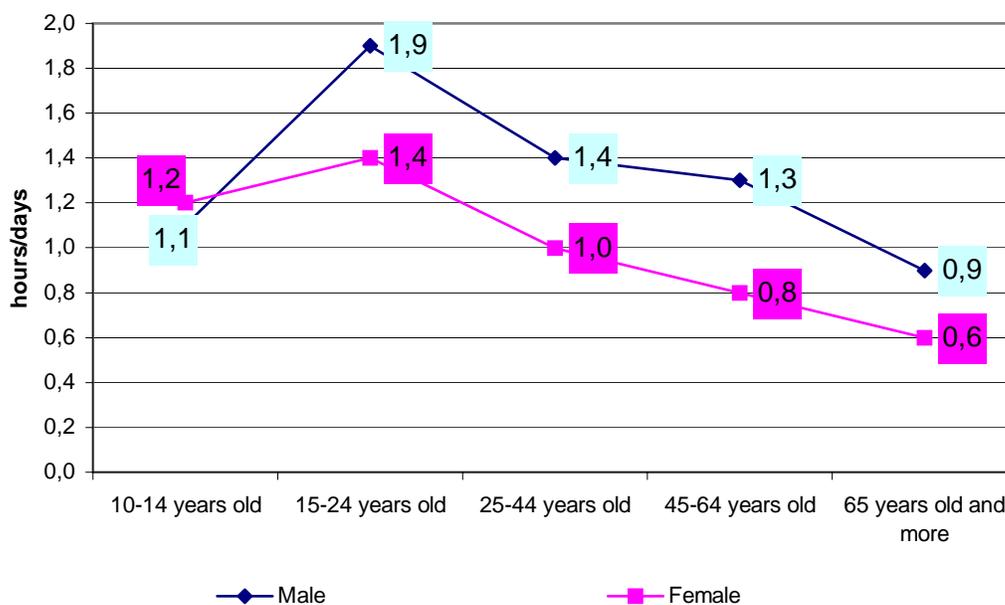
Table 4. The average time spent on trips to/from school or university – working days

GROUPS OF AGE	(hours)	
	10-14 years old	15-24 years old
Male	0.4	0.2
Female	0.3	0.2

Source: Time Use Survey in Romania, National Institute of Statistics, 2001

Young people spend considerably longer traveling to and from education or training than people spend traveling to and from work. This may reflect young people's mode of transport (e.g. walking or cycling) rather than the distance they have to travel. On average, 12-17 years old who recorded travel time to or from education institutions spent 59 minutes per day, while 18-24 years olds spent 52 minutes.

Figure 4. Daily average time of travels, by sex and groups of age – working and weekend days



The maximum length of time of travels is registered at older persons of 15-24 years old. As the age increases, the duration of travels decreases: at men, the average time decreases from 1,9 hours la

¹⁰⁾ Travels are the travels done by the population between two places, independent of the purpose and means of transport. There are hereby-included travels linked to main or secondary economic activity, going to and from school or university, housework, social life, etc.

group of age of 15-24 years old to 0,9 hours at group of age of 65 years old and over, and for women, from 1,4 hours to 0,6 hours at the same groups of age.

The duration of travels carried out by the persons of the urban area is higher than the persons of the rural area with 0,3 hours (1,3 hours compared to 1,0 hours).

2.2. Informal education

According to the methodology of the survey, the time outside of the school is considered free time. But a lot of leisure activities have value in terms of education. In his Nobel Prize lecture, G. Becker said: ... *formal education is not the only way to invest in human capital. Workers also learn and are trained outside of schools, especially on jobs. Even college graduates are not fully prepared for the labor market when they leave school, and are fitted into their jobs through formal and informal training programs.*

The best source of information on informal education¹¹ is the time use surveys which code such activities as special lectures, self study, self-help group involvement -- for most of this activity is designed to overcome functional limitations -- and those activities connected with the learning and renewing of values and behaviors needed for effective functioning, communication and work. For example, much time spent watching television, reading books, and attending cultural events or attractions is educational. Unfortunately, because most of the value of these activities is recreational, however, these activities are classified as leisure.

Reading is a preoccupation for 21,0% from the population of 10 years old and over (24,2% among men and 18,0% among women). At the female population it noticed that as the age increases the share of those who have time and interest for reading, decreases; at 10-14 years old the share is 40,6%, while at 65 years old and over the share is 11,1%. Also for men, the greatest share is registered at the group of age 10-14 years old, respectively 28,2%. In turn, the smallest participation appears at persons of 25-44 years old (21,1%).

Tv is watched by 85,4% of the total of sampled population aged 10-24 years old (school age population). There is a small difference between men and women (3,4 percentage points in the balance of men).

Table 5. The participation ratio of the population to watching TV activity, by sex and groups of age – working and weekend days

	%		
	TOTAL	10-14 years old	15-24 years old
TOTAL	85,4	89,9	84,8
Male	87,1	89,8	84,5
Female	83,7	90,0	85,0

Source: Time Use Survey in Romania, National Institute of Statistics, 2001

¹¹ *Informal education*: the lifelong process whereby every individual acquires attitudes, values, skills and knowledge from daily experience and the educative influences and resources in his or her environment - from family and neighbours, from work and play, from the market place, the library and the mass media.

By level of education, daily average time allotted to watching TV shows, in both types of days registers an ascending curve, directly proportional to the education level.

In rural area watch TV less persons than in urban area, the difference between the two regions being of 14,5 percentage points. In urban area, the share of women reaches towards the men's, the difference being of 1,6 percentage points (92,7% compared to 91,1%).

3. Education and labor

“Universities are becoming, at the end of the century, what banks were at the beginning: the suppliers of the nation’s most needed source of capital” John Kenneth Galbraith

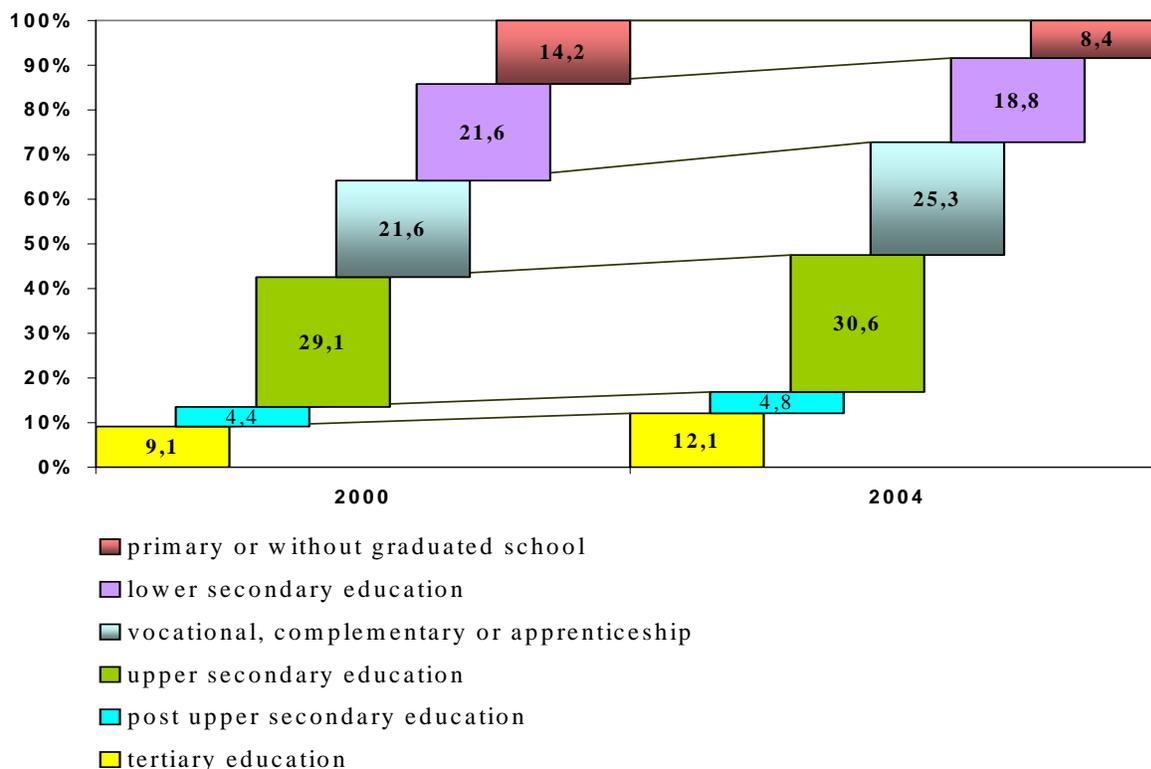
The relationship between education and employment has been the subject of substantial research over the last decade. High unemployment rates for youths have caused concern for twenty years, leading researchers and policy-makers to focus on the school-to-work transition stage of young people’s lives.

The levels of education have major influences in positive labour market outcomes including labour force participation, employment and earnings. This section investigates the relation between level of education and earnings across Romanian employed people.

Presently, in Romania¹²:

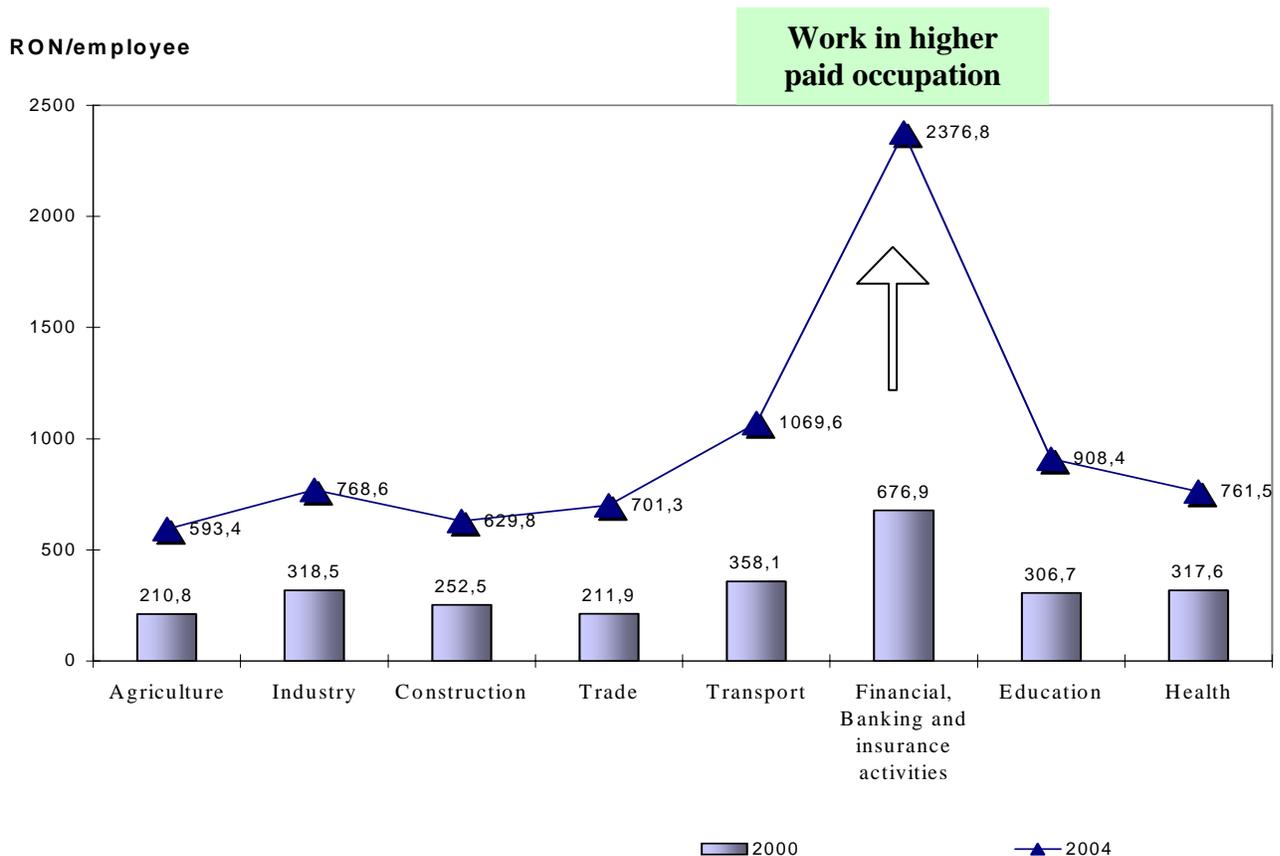
- ➡ over 12% of the employed population have university education;
- ➡ almost 45% of the employed population aged 35-44 years old has upper secondary education;
- ➡ approximately 8% of the employed population have primary education or have no education;
- ➡ only 2% of the work-age youth population in the age group 25-34 have primary education.

Figure 5. Dynamic of employment by educational level, in 2000 and 2004



Analyzing the average of gross salary per employee by some national activities could be observed that the occupations that involve a high level of education are better paid.

Figure 6. Average Gross Salaries¹³ by main activity of national activity, in 2000 and 2004



Total current expenditure for personnel compensation in public educational institutions as a total amount at national level was 5321,6 mil. RON¹⁴, in 2004, comparing to 1492,5 mil RON in 2000. Over 20% of total expenditure on education are spent in tertiary level (ISCED 5, 6 according to International Classification of Education).

Table 6. Education Expenditure for personnel compensation in public institutions, by category

	2000	2004
Total current expenditure for personnel compensation	1492,5	5321,6
Salaries	1057,3	4012,7

Source: UOE data Collection, 2002-2006

¹³ Source: Survey on salary by occupations, in October

¹⁴ RON – Romanian New currency (LEI)

Education development leads to better earnings, a solid basis for furthering skills and career development, jobs with regular longer hours, work in higher paid occupation. Education enables people to gain knowledge, skills, and attitudes so they can participate to social and economical development.

Conclusions

One of the key determinants of our country's economic progress is the level of education and skills in our population, and one of the key ways we track skill levels is by looking at the educational qualifications of our population. This study analyses the value of time as relevant aspect of economic valuations of life, knowledge becoming the major factor for economic and social development.

Because a division of time into labor and leisure is not sufficient to allow a complete analysis of the values of the components of time the forward research will be in attention focused on:

- carry out of a new time use survey
- identify the variables to conduct to the human capital measures
- clarify the role it should have in the area of human capital measurement into the economic and social life
- identify opportunities for future work in the area.

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