

The Economic Efficiency of the Romanian Higher Education at the End of the 1960s. A Demographical Perspective

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Abstract: With the development of demography and population studies in the second half of the 1960s in Romania, a special attention was given to the economic efficiency of the Romanian education system, as education was considered ‘the main factor of economic growth’. Several demographic and economic studies reveal a special concern for the developmental effectiveness of the higher education system. This article examines several key concepts (such as ‘intellectual capital’ as opposed to ‘physical capital’, or ‘education stocks’), used by Romanian demographers for the evaluation of the economic efficiency of the Romanian higher education system at the end of the 1960s.

Keywords: *demographic policies, higher education, economic efficiency, socialist system, education stock.*

‘Intellectual capital’, ‘education stock’ and ‘economic productivity’: a technocratic solution for Romania’s development at the end of the 1960s

At the end of the 1960s - beginning of the 1970s, a wide range of technocrats were vividly preoccupied with the maximization of the economic potential of Romania’s population. For example, the debate dedicated to the study and analysis of the

economically active population end of the occupied population, organized by the Central Direction of Statistics (Direcția Centrală de Statistică) and the Academy of Social and Political Sciences (ASSP) on 29th of April 1970 shows an increasing interest for the formation and maximization of human resource (*Probleme economice*, 1970:91-94).

Statisticians, demographers, economists, sociologists were willing to

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employ Western concepts and authors in order to apprehend and optimize this important resource. (Trebici, 2011:103). In his PhD thesis (Trebici, 1971), for example, the statistician and demographer Vladimir Trebici used the newest bibliography on the subject, developed in the Western scholarship (Vaizey, 1964; Vaizey, Robinson, 1966; Denison, 1962; Denison, 1965; Denison 1968; Farbison, 1964).

Gradually, the population started to be conceived in terms of 'human capital' with a seminal role in economic growth. In this equation, the levels of professional qualification proved to be highly important and the economic efficiency of education was debated upon from different perspectives.

This article focuses on the elaboration and the use of 'education stock' model in the assessment of the economic efficiency of education in Romania. I will analyze the conclusions reached by such studies on the relation between tertiary education and economic productivity, and the importance the highly qualified workforce had for the economic growth of the country.

The need for new research tools to study the economic efficiency of education

Systematic research on the economic efficiency of education was conducted between 1968 and 1970, focusing on several issues: education as the main force of social propulsion, the contribution of education to the wide reproduction of qualified working force, ergonomics of the education system and its contribution to the

economic efficiency of education, the rational use of existing education facilities, the opportunity to measure the economic efficiency of education and its influence on economic growth. The research started in the Autumn of 1968, with the following research team: dr. Petre Burloiu, University reader; dr. Miron Constantinescu, University professor, dr. Dan Grindea, University reader, dr. Mircea Manolescu, University professor, dr. Nicoale Radoveanu, University professor, and dr. Costea Ștefan, University lecturer (Burloiu, Constantinescu, Grindea, 1969:109-116).

Researchers underline the importance of education and science for the general development of society, in the general context of the postwar scientific and technological revolution emphasizing the major impact education has on the development of all the branches of economic activity (Burloiu et al. 1969:108). They indicate a number of general methods that can be used in order to measure the influence education has on economic growth, reflected by correlations between: the level of adults' illiteracy and the national income *per capita* in different countries; number of pupils to 1,000 inhabitants, number of students to 10,000 inhabitants and the national income *per capita* in different countries; share of highly qualified specialists in the fields of production, scientific research and planning compared with the country's population aged over 21 and its relation with the national income *per capita*; the percent of the country's educational spending and the rhythm of growth of the national income; the percent of country's spending on

technical education of all levels and the rhythm of growth of the national income (Burloiu et al, 1969: 111-112).

They also emphasize the need to elaborate mathematical models in order to assess the educational process in terms of economic productivity. These mathematical models could be employed at both microeconomic and macroeconomic scale: at microeconomic level these models would provide important information on educational costs, the functioning of the educational process or its organization, whereas at macroeconomic scale they would evaluate the perspective of the impact the educational process has on general economic growth (Burloiu et al, 1969: 112).

Education stock & the economically active population: studies, conclusions and recommendations

One solution to this need was the elaboration of the ‘education stock’ model for Romania, used in several studies on the economic efficiency of the educational process. In discussing Romania’s education stock, Vladimir Trebici, professor of statistics and demography at the Academy of Economic Studies in Bucharest (Trebici, 2011: 101), and Emil Mesaroş, deputy director of the Central Direction for Statistics, relied on recently developed Western concepts and notions, such as ‘human capital’ or ‘intellectual capital’. Vladimir Trebici was the first to discuss the ‘education stock’ in 1969 (Trebici, 1969), and a few weeks later Emil Mesaroş gave an in-depth presentation of Romania’s

education stock (Mesaroş, 1969:16-26); two years later, Trebici resumed the discussion in his PhD thesis (Trebici, 1971). Using the statistical data provided by the 1956 and 1966 censuses, the two specialists reached important conclusions regarding the economic efficiency of the Romanian education system, making important recommendations for the further development of secondary and higher education. Mesaroş’ study offers systematic explanations of the ‘education stock’ model, while Trebici is more concerned with the economic consequences of the stock structure and evolution between 1956 and 1966.

Mesaroş claimed the importance of education for economic growth: ‘It is widely agreed that the volume and value of the human capital depends upon the investments in all the education levels’, given that ‘the human capital is a powerful fact of social advancement’ (Mesaroş, 1969: 16). Scholars around the world agree that the differences between the pace of economic growth of countries with the same rhythm of investments are determined by the dissimilarities in the quality of the working force professional qualifications. This was not only the opinion of Western economists, statisticians and demographers, but also of Soviet specialists, as Mesaroş reassures his readers, using the example given by the Soviet Academician Stumilin who had acknowledged that ‘a worker who is able to read or to write can increase the general productivity by 30 per cent.’ (Mesaroş, 1969: 17).

After emphasizing the role of education in economic growth, Mesaroş undertook a systematic

investigation of Romania's education stock, which he defined as 'the intellectual and cultural patrimony of a country, built up through tertiary, secondary or elementary studies' (Mesaroş, 1969:16). The education stock is calculated by adding up all the years of study for any level, at a given time. The structure of the education stock depends upon the share each educational level has in the total educational stock, and is determined by the country's level of social and economic progress, by the development of its education system and by citizens' access to the three education levels. In the general context of the postwar scientific and technological revolution, the more developed a country was, the higher the share of tertiary and secondary level within the total education stock (Mesaroş, 1969: 16-17). The correct study, analysis and evaluation of the Romanian education stock would be very important, not only from a theoretical, but also from a

practical perspective, Mesaroş argued. The results of this evaluation would prove helpful for the future planning of the entire education system, from the perspective of the optimization and efficient use of the education stock in our country (Mesaroş, 1969: 17).

After presenting in detail alternative methods for the evaluation of the education stock (Mesaroş, 1969: 17-23), as described in international literature, Mesaroş decided to employ the one that makes the best use of statistical data available in Romania (Mesaroş, 1969: 23). This method has three well-defined steps:

1. First, the estimation of average years of schooling for each education level, and the number of graduates for each age group in order to establish the education stock of each age group; this allows for the calculation of the Total Education stock (TES) of a given country at a given moment in time, expressed in the number of schooling years (see tables one and two).

Table 1. *The computation of the education stock of Romania at the 1956 census. Population aged 8 or over*

Highest educational level attained	Number of graduates	Average schooling years on level of education	Education stock (thousands of schooling years)	Weighting factor	WES (thousands of schooling years)	WES structure (%)
Higher education	213723	4.5	962	11.6	10736	14.3
Secondary education	628383	4.0	3369	3.96	13337	17.8
Elementary education	10628100	-	50982	1.0	50982	67.9
- Schools of 7/8 years	1139299	7.0	7915	-	-	-
- Primary schools	9488801	4.0	37955	-	-	-
Total	11470206	-	-	-	75055	-

Source: Mesaroş, 1969:25.

Table 2. *The computation of the education stock of Romania at the 1966 census. Population aged 12 or over*

Highest educational level attained	Number of graduates & percent of the total population aged 12 or more	Average schooling years on level of education	Education stock (thousands of schooling years)	Weighting factor	WES (thousands of schooling years)	WES structure (%)
Higher education	328241 (2.2%)	4.5	1477	11.16	16483	13.7 %
Secondary education	1745502 (11.5%)	4.0	8279	3.96	32785	27.3 %
Elementary education	13121505 (86%)	-	70785	1.0	70785	59.0 %
Schools of 7/8 years	1680443	7.5	12603	-	-	-
Primary schools	11441062	4.0	45764	-	-	-
Total	15191248	-	80541	-	106851	100

Source: Mesaroş, 1969:25.

2. TES does not represent the complete education stock of a country. In order to obtain the complete education stock, TES has to be supplemented with the number of schooling years attended but not necessarily graduated for an education level, related to each age group.

3. In order to get a relevant form of TES expressed in schooling years, it must be calculated with the help of a weighting factor. In calculating Romania's weighted education stock (WES), Mesaroş uses an economic criterion as a weighing factor, namely the educational spending for a student/pupil for each of the three education levels (elementary,

secondary, tertiary). By convention, the educational spending for a pupil in elementary education is equal to one, the educational spending for a pupil in secondary education is expressed as $1 + x$, while the educational spending for a student in tertiary education is expressed as $1 + y$. Using this convention, it was possible for Mesaroş to establish a homogenous relation between the three education levels in terms of spending, thus obtaining an operation weighting factor to calculate the WES.

For Romania, Mesaroş calculates the following weighting factors:

- one year of schooling in primary education costs 1,000 lei

- one year of schooling in secondary education costs 3,961 lei

- one year of schooling in tertiary education costs 11,160 lei.

Therefore, the weighting factors are as follows:

- for primary education, $1000/1000 = 1$

- for secondary education, $3962/1000 = 3.96$

- for tertiary education, $11160/1000 = 11.16$

Once the weighting factors determined, Mesaroş could compute Romania's weighted education stock in 1956 and 1966 (see tables one and two).

Beside the weighting factors, Mesaroş used the following conventions and approximations:

- he decided to compute only the TES and not the integral education stock, by considering only the highest level of education graduated by each census respondent.

- in order to frame each respondent's last school graduated, Mesaroş used three levels of education:

a) **elementary education**, containing both primary school and schools of seven or eight years (consisting in primary school and gymnasium)¹.

b) **secondary education**, comprising general high-schools (*şcoală medie de cultură generală*), specialized high-schools (*şcoală medie de specialitate*), technical high-schools (*şcoala medie tehnică*), vocational apprentice schools (*şcoli profesionale de ucenici*), vocational schools (*şcoala de meserii*).

c) **tertiary education**, covering universities, polytechnics, medicine, architecture, theatre and film institutes,

etc.

For each education level, Mesaroş used an average time length of enrolment:

- for elementary education, the average length of enrolment is considered to be four years if the respondent only graduated primary school, or seven point five schooling years if he graduated gymnasium as well. In either case, the weighting factor for each year in elementary school was one.

- for secondary education, the average length of schooling was considered to be four years.

- for tertiary education, the average length of schooling was four point five years.

For the computation of the TES and of the weighted education stock (WES), only the population who was at least 12 upon census completion was taken into consideration.

After comparing the TES and WES evolution between 1956 and 1966, Mesaroş reached the following conclusions (Mesaroş, 1969: 24):

As compared to the 1956 WES, the 1966 WES showed an important decrease in the elementary education share to the benefit of the secondary education share.

Between 1956 and 1966, TES significantly increased at all educational levels, reflecting the general development of the education system. Secondary education witnessed a significant expansion between 1956 and 1966, in both absolute numbers (TES) as well as in shares (WES): secondary education graduates almost tripled in 1966 as compared to 1956 (from 3,369,000 in 1956 to 8,279,000 in 1966), while the share of secondary

education increased in the WES from 17.8 per cent in 1956 to 27.3 per cent in 1966. However, Mesaroş did not emphasize the decrease of the tertiary education share: even if the total number of higher education graduates increased from 962,000 schooling years in 1956 to 1,477,000 schooling years in 1966, the weight of the tertiary education stock slightly decreased

from 14.3 per cent in 1956 to 13.7 per cent in 1966 (see tables one and two).

Mesaroş also noticed important correlations between the structure and volume of the education stock and the configuration of the economically active population², which in 1966 represented 54.2 per cent of the general population (Halus, 1969: 51) (see table 3).

Table 3. *The computation of the education stock of Romania at the 1966 census. The economically active population.*

Highest educational level attained	Number of graduates	Average enrollment years on level of education	Education stock (thousands of schooling years)	Weighting factor	WES (thousands of schooling years)	WES structure (%)
Higher education	289954 (2.8%)	4.5	1305	11.16	14564	16.4%
Secondary education	1367640 (13.2%)	4.0	6631	3.96	26255	29.5%
Elementary education	8704706 (84%)	--	48156	1	48155	54.1%
Schools of 7/8 years	969106	7.5	7268	-	-	-
Primary schools	7735600	4.0	30942	-	-	-
Total	10362300	--	56092	-	88975	100

Source: Mesaroş, 1969:26

Tertiary education graduates seemed to enjoy the highest chances of becoming economically active (Mesaroş, 1969: 24). The activity ratios related to the highest education level attained show that 88.3 per cent of tertiary education graduates, 84 per cent of secondary TES, and 68 per cent of elementary education graduates became economically active (see table four).

While tertiary and secondary education graduates are overrepresented in the active population, elementary education

graduates are underrepresented when compared to the general population: tertiary education graduates represent only two point two per cent of the population aged over 12 or more, and two point eight per cent of the economically active population (+0.6 per cent), secondary education graduates represent 11.5 per cent of the population aged over 12 or more, and 13.2 per cent of the economically active population (+1.7 per cent), while elementary education graduates represent 86 per cent of the population aged over 12 or more and only 84

Table 4. Educational level related activity ratio

	Total population aged 12 or over	Active population	%
Population aged 12 or over	15191248	10362300	68.2%
Higher education graduates	328.241	289.954	88.3%
Highschool graduates	559,380	354,831	63.4%
Technical and specialty highschool graduates	452,645	379,977	83.9%
Vocational and apprentice	729.477	632.832	86.8%

Source: Trebici, 1971:334.

per cent of the economically active population (-2 per cent).

These tendencies are even more evident when the structure of the education stock is analyzed. The active population concentrates 68.2 per cent of the education stock of the population aged 12 or over. Although they are only two point two per cent of the general population aged over 12 or more, tertiary education graduates account for three point seven per cent of the WES (+10.5 per cent) and 16.4 per cent (+14. per cent) of the WES of the economically active population. Secondary education graduates represent only 11.5 per cent of the general population aged over 12 or more and hold 27.3 per cent (+15.8 per cent) of the WES and 29.5 per cent (+18 per cent) of the WES of the economically active population. The situation is reversed for elementary school graduates: with 86 per cent of the general population over 12 or more, elementary level graduates only hold 59 per cent (-27 per cent) of the WES and even less of the WES (-31.9 per cent) of the economically active population (see table five , Figures one and two).

These trends show the importance of the quality and volume of education

stock for the economically active population. The more developed a country, the more the active population tends to decrease in number (Halus, 1969: 51-52) and increase in levels of professional qualification (Mesaroş, 1969: 24). Given that any qualitative or quantitative improvement of the work force influences technical progress positively, the qualitative expansion of Romania's education stock is a necessary prerequisite for the country's future economic and social development, Mesaroş concluded.

As the rapid growth of 'intellectual capital'³ determined a significant growth in economic efficiency between 1956 and 1966, Vladimir Trebici was more concerned with the economic efficiency of active population. He made a distinction between the education stock of the entire population, and the one of the economically active population, as it was the active population that 'converted' the 'intellectual capital' into an economically productive force (Trebici, 1969:4), as the 'intellectual capital' could be used for social production (economic and social activities) (Trebici, 1971: 337).

This capacity is reflected by the educational structure of the active

Table 5. Comparison between the shares of graduates and of the WES related to the educational level in the population over 12 years and in the active population at the 1966 census

		Tertiary education	Secondary education	Elementary education
Share of graduates	Population aged 12 years or more	2.2%	11.5%	86%
	Active Population	2.8%	13.2%	84%
Share of the Weighted educational stock	Population aged 12 years or more	13.7%	27.3%	59%
	Active Population	16.4%	29.5%	54.1%

Source: Data derived from Table 2 and Table 3.

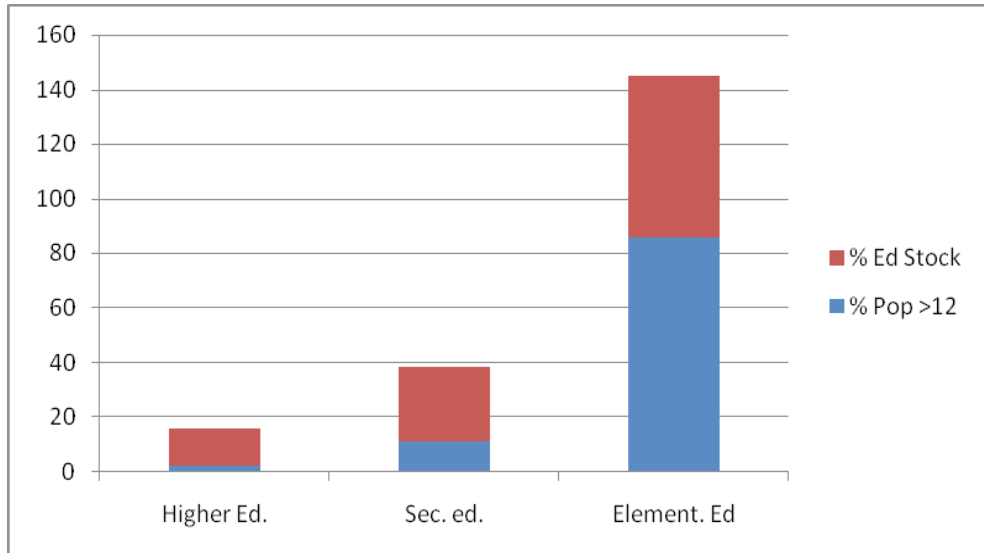


Figure 1. Relation btw. the share of graduates and share of WES related to the educational level in the population aged over 12 or more at the 1966 census.

Source: Mesaroş, 1969:26.

population, and any attempt to determine the economic efficiency of the educational process has to take into account the ‘education stock’ of the active population. In order to compute Romanian’s education stock, Trebici uses the model offered by Michel Debeauvais and Pierre Maes (Debeauvais, Maes, 1968: 415-436). Comparing the structure of the WES of

1956 and 1966, Trebici acknowledged that the share of secondary education graduates in the population aged 12 and over increased from four point six per cent in 1956 to 11.5 per cent in 1966 and that of tertiary education graduates from one point six per cent in 1956 to two point two per cent in 1966 (Trebici, 1971: 333), concluding that the increase of the weight of

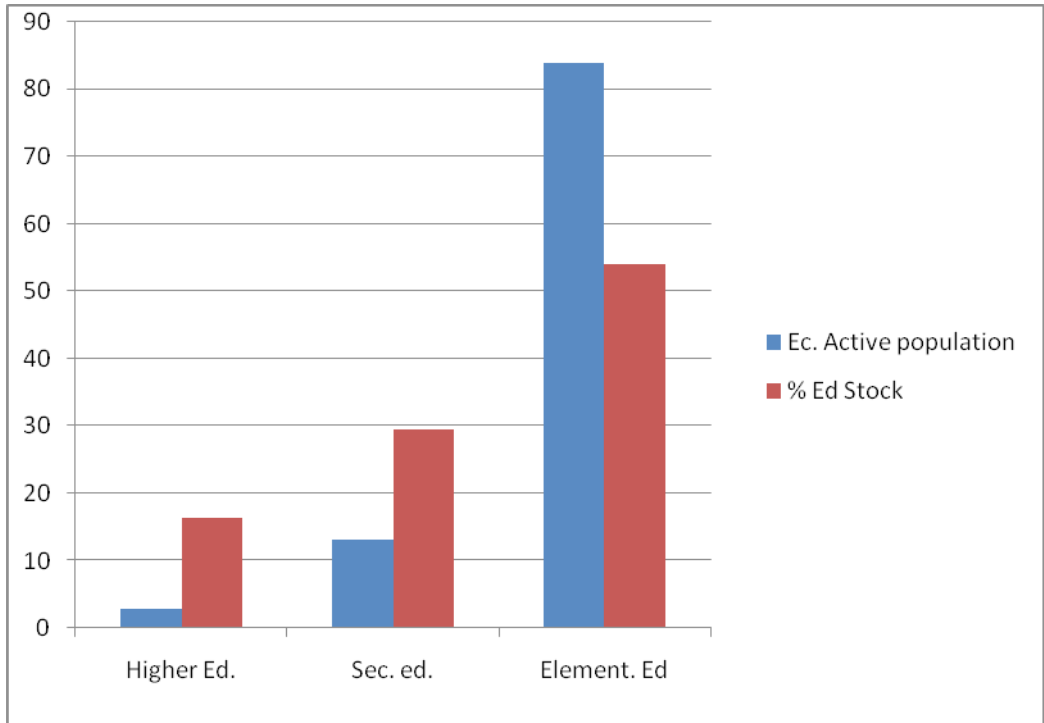


Figure 2. Relation btw. the share of graduates and share of WES related to the educational level in the economically active population at the 1966 census

Source: Mesaroş, 1969:26.

tertiary and secondary education stock is very important for the general development of the country (Trebici, 1969: 4).

Trebici confirmed Mesaroş' results on the relationship between education stock and active population. Statistical data showed that in 1966 the economically active population held the biggest shares of TES, and, most important, the largest shares of the tertiary and secondary education stock. In Romania, the 1966 census defined the active population as being constituted by 'persons older than 12 years who carried an occupation within the ranges of the national economy branches, as well as a large range of other categories: all the employed who were following different specializations and who were on temporarily leave,

persons who were taking the military service, persons in unpaid leaves, persons who were in prison but who had an occupation before, persons who were changing the working place, etc.' (Trebici, 1971: 246).

The share of graduates of tertiary and secondary education stock was higher across the active population than across the entire literate population, while in industry this share was double as compared to the entire literate population. The categories and groups of occupations for the 1966 census were: workers, intellectuals and clerics, cooperative farmers, farmers with self-owned households (*tărani cu gospodării individuale*), cooperative craftsmen, private craftsmen, etc. There were some differences between the 1956 and 1966 censuses: in

1956 the persons in-between jobs were considered to belong to the economically inactive population, whereas in 1966 they were considered to belong to the active population. In 1956, students of secondary apprentice schools for apprentices (*şcoli profesionale de ucenici*) and of secondary technical schools (*şcoli medii tehnice*) were considered to belong to the economically active population, whereas in 1966 they were considered to belong to the economically inactive population (Trebici, 1969:4).

Trebici offered important details on the conditions under which the significantly increased shares of the education stock of the active population took place between 1956 and 1966. The absolute number of the active population decreased by 87,000 between 1956 and 1966. The economic activity ratio, the number of economically active persons as a percentage of the total population, also decreased from 59.7 per cent (1956) to 54.2 per cent (1966) (Halus, 1969:51). This decrease was caused by demographical changes but also by the effects of the significant growth in the number of students and pupils, and the extension of schooling (Trebici, 1969:4), given that pupils/students enrolled in any form of schooling do not belong to the active population.

These structural changes bore effects in the age specific activity ratios, as Age specific activity ratio represents the share of economically active population in an age specific group (Siegel, Swanson (eds.), 2004: 235). Thus, the most affected was the age group 14-19: its activity ratio decreased from 78.9 per cent in 1956 to 41.5 per cent in 1966, and the age

groups over 60, whose activity ratio decreased from 59.6 per cent in 1956 to 39.7 per cent in 1966, as a consequence of new retirement conditions (Trebici, 1969: 4) (see table six). In the general context of population aging, these structural changes made the crude dependency ratio – that is the proportion of economically inactive persons to 100 economically active persons – to increase from 67.4 of 100 active persons (1956) to 84.4 of 100 active persons (1966) (Trebici, 1971: 297).

Given the decrease by seven point two per cent in the population involved in material production, the increase in fixed assets by 86 per cent and the increase of TES by 37 per cent between 1956 and 1966, the national income per active person working in material production (the productivity of the social work) increased between 1956 and 1966 by 181 per cent. Between 1956 and 1966, education brought a growth of 155 per cent to the national income, Trebici concluded (see table seven) (Trebici, 1969:5).

Further specialized studies were needed in order to better determine the importance of education for economic growth, and to provide useful data for further educational strategies, Trebici concluded (Trebici, 1969:5). Trebici partially undertook this task in his PhD thesis, where he analyzed the activity ratios related to the sex-age-educational level and urban/rural distribution of Romania's active population (see tables six and eight).

He concluded that both rural and urban education attainment ratios were higher for men than for women and that there were important disparities (Trebici, 1971: 335-338) between

Table 6. Age-sex-education activity ratios

Age groups	Tertiary education			Secondary education			Elementary education		
	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
Average	88.3%	90.5%	83.9%	83.9%	88.8%	78.4%	86.9%	93.5%	66.6%
16-19 y	-	-	-	8%	95.5%	89.5%	95.7%	79.9%	87.4%
20-24 y	90.4%	89.9%	90.9%	92.2%	91.6%	93.2%	94%	97.6%	81.3%
25-29 y	97.6%	98.1%	96.9%	92.5%	95.9%	91.4%	95.3%	99.2%	80.5%
30-34 y	98.6%	99.5%	97.1%	93.5%	98.1%	88.5%	94%	99%	75.4%
35-39 y	98.4%	99.6%	95.5%	93.6%	98.9%	84.3%	90.9%	98.6%	71.2%
40-44 y	97.8%	99.3%	93.7%	92.8%	98.5%	81%	88%	98%	66.9%
45-49 y	96%	98.6%	89.6%	91.4%	97.6%	78.2%	83.6%	96.6%	61.2%
50-54 y	92.7%	97.1%	81.1%	89.6%	95.0%	75.2%	78.7%	91.9%	50.9%
55-59 y.	78%	92.8%	39.6%	87.5%	87.5%	24.9%	64.6%	80.1%	23.8%
60-64 y.	51%	62.1%	17.1%	64.9%	37.4%	7.1%	26.4%	33.7%	10.9%
>=65y	22.3%	25.8%	9.1%	26.0%	11.2%	2.6%	10.7%	15.9%	3.6%

Source: Trebici, 1971: 339.

Table 7. Economic efficiency of the active population

Nr.crt.		1956	1966	1966 compared to 1956
1.	Total population	17489450	191103163	109.2 %
2.	Total active population	10449000	103620000	99.2 %
3.	Active population in the sphere of material production	9613080	9222180	92.8 %
4.	Fixed assets in national economy (%)	100	186	186%
5.	Education spending	100	329	329%
6.	TES	58000000	79399500	137 %
7.	Tertiary and secondary education stock	91720000	24462778	260 %
8.	National income per person active in the sphere of material production	100	281	281%

Source: Trebici, 1969: 4.

Table 8. *Urban/rural distribution of the active population, according to the highest level of education attained and sexes*

		Graduates of both sexes (absolute numbers &%)	Male graduates (absolute numbers &%)	Female graduates (absolute numbers &%)
Tertiary Education (2.8% of the Ec. active population)	General	290,000 (100%)	200,500 (69%)	89,500 (31%)
	Urban	255,700 (88%)	175,200 (60%)	80,500 (28%)
	Rural	34,300 (12%)	25,300 (9%)	9000 (3%)
Secondary Education (13.2% of the Ec. active population)	General	1,367,600(100%)	928,200 (68%)	439,400 (32%)
	Urban	1,030,200 (75%)	685,000 (50%)	345,200 (25%)
	Rural	337,400 (25%)	243,200 (18%)	94,200 (7%)
Elementary education (84% of the Ec. active population)	General	8,704,700(100%)	4,546,000 (52%)	4,158,300 (48%)
	Urban	2,430,000 (27%)	1,379,100 (16%)	961,600 (11%)
	Rural	6,364,000 (73%)	3,167,300 (36%)	3,196,700 (37%)

Source: Trebici, 1971: 335.

urban/rural distribution of the qualified work force, with secondary and tertiary education graduates massively concentrated in urban areas: in 1966 the urban population of Romania concentrated 35.3 per cent of the total population, but 88.9 per cent of tertiary education graduates and 78.5 per cent of secondary education graduates (Trebici, 1971: 335). The active rural population represented 65 per cent of the country's total active population, but only 0.5 per cent of the rural active population graduated a tertiary education institution, and concentrated only 12 per cent of active tertiary education graduates (see table seven). Consequently, the rural 'education stock' was continuously dropping, and Trebici warned about the long term demographic consequences of this situation, i.e. the increasing ratio of aging population and the female population in rural areas (Trebici, 1971:300).

The positive correlation noticed by the two statisticians between the TES, the ever more important shares of secondary and tertiary education in the WES, the educational spending on the one hand, and economic growth on the other reconfirm the importance that long-term investments in education. The qualitative and quantitative development of secondary and tertiary education institutions, which ensured the specialization and qualification of the work force, is regarded as an important investment that can bring economic benefits on the long run. Using Western concepts and Romanian statistical data, the technocrats convincingly demonstrated at the end of the 1960s - beginning of the 1970s, that a well-adjusted education system can transform the 'intellectual capital' into a productive force, with an essential contribution to economic growth and social development. The increase in the volume and qualification

of the tertiary and education stock represented a prerequisite for this transformation.

Unfortunately, the political ruling circles did not take into consideration the reasonable arguments advanced by the technocrats, which was yet another example of political leaders arbitrarily ignoring specialized opinion and expertise during communism. The way in which the pro-natalist measures of Ceaușescu's regime emerged and developed between 1966 and 1989 represents another situation where political goals prevailed over specialists' opinions in drafting population-related policies (Pălășan, 2009; Doboș (ed.), 2010). Starting with the 1970s, technocrats were gradually replaced by a political clientele of the ruling circles, with visible consequences on the quality of the Romanian education system (Murgescu, 2010: 388). The volume and specialization of higher education, as well as educational spending constantly decreased throughout the 1980s (Murgescu, 2010: 390-391), with a negative impact on work force specialization and qualification.

Notes

¹ The 6th article of the 1948 Education Law (*Monitorul Oficial*, 1948) stipulated that the duration of elementary school is 7 years, out of which only the first 4 corresponding to primary school were compulsory. Starting with the academic year 1962/1963, the duration of elementary education was gradually extended to 8 years, which also became compulsory (Diac, 2004: 146.)

² Although everybody consumes goods

and services, only a part of the population of a country is involved in producing such goods and services. Most obviously, the youngest, the oldest, and the physically or mentally incapacitated do not engage in such economic activities because of their inability to do so. The manpower of a nation, then, is the totality of persons who could produce goods and services if there were a demand for their labor and they desired to participate in such activity. The economically active population is that part of manpower that is actually working or looking for work, and comprises all persons of either sex who furnish the supply of labor for the production of goods and services during a specified time-reference period. It includes both employed persons and job-seekers. (Shryock, Siegel, Larmon, 1980: 336).

³ The general input of knowledge brought into the sphere of social production prompted the concept of 'intellectual capital' as opposed to 'physical capital.' Trebici defined the 'education stock' as 'intellectual capital', representing the total number of schooling years of the population at a given moment. The share of the total education stock had in a country's total population was thus an indicator for the accumulation and development of culture in that country (Trebici, 1971: 329).

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References

- **** (1970) ‘Metodologia de determinare și analiza populației active și a populației ocupate’. *Probleme economice*, 23(7):91-94.
- Burloiu, P., M. Constantinescu, and D. Grindea (1969) ‘Proiectul planului de cercetare a temei: Eficiența învățământului’. *Forum*, 11(2-3):108-116.
- Debeauvais, M. and P. Maes (1968) ‘Une méthode de calcul du stock d’enseignement’. *Population*, 23(3):415-436.
- Denison, E. (1962), ‘The sources of Economic Growth in the US and the Alternative before us’. Supplementary Paper (13).
- Denison, E. (1968) *Why Growth Rates Differ*. Washington: Brookings Institution.
- Denison, E. (1965) ‘Investment in Human Capital’. *Monthly Economic Letter*, First National City Bank
- Diac, F. (2004) *O istorie a învățământului românesc*. Vol.II. București: Oscar Print.
- Doboş, C. (2010) (ed.) *Politica pronatalistă a regimului Ceaușescu*. Vol. I: *O perspectivă comparativă*. Iași: Polirom.
- Farbison, F. and C.A. Myers (1964) *Education, Manpower and Economic Growth*. New York: McGraw Hill.
- Halus, R. (1969) ‘Populația activă în R.S. România și tendința în structura pe vârste’. *Revista de statistică*, 23(7):50-56.
- Mesaroş, E. (1969) ‘Noi abordări ale eficienței învățământului’. *Forum*, 11 (10):16-26.
- Monitorul Oficial* (1948), part 1, no. 177.
- Murgescu, B. (2010) *România și Europa. Acumularea decalajelor economice (1500-2010)*. Iași: Polirom.
- Pălășan, C. (2009) ‘Caracterul profund restrictiv al politicii nataliste în România comunistă, 1966-1989’ In Ivan, R. (ed.), *Transformarea socialistă. Politici ale regimului comunist între ideologie și administrație*, pp.148-173. Iași: Polirom.
- Shryock, H.S, J. S. Siegel and E. A. Larmon (1980) *The methods and materials of demography*. Vol.1. New York: Department of Commerce, Bureau of the Census.
- Siegel, J.S. and A. Swanson (2004) (eds.) *The Methods and Materials of Democracy*. London: Elsevier Academic Press.
- Vaizey, J. (1964) *The Economics of Education*. London: Faber and Faber.
- Vaizey, J. and E. A. Robinson (1966) (eds.) *The Economics of Education*. London: McMillan.
- Trebici, V. (2011) ‘Însemnări din memorie (VI)’. *Glasul Bucovinei*, 18(3):87-110.
- Trebici [Trebiș], V. (1971) *Creșterea economică și dezvoltarea populației în R.S. România în perioada 1948-1989*, PhD Thesis, Universitatea din București at The National Archives of Romania, Fund ASSP-Filosofie și Logică, file no. 10/1971. MS.
- Trebici, V. (1969) ‘Populație, educație, eficiență economică’. *Viața economică*, 7(17):4-5.

