

THE DYNAMICS OF HUMAN DEVELOPMENT IN ROMANIA DURING THE 1899-1999 PERIOD

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Abstract *The paper proposes a methodology to estimate the dynamics of a country's human development in the long run. The methodology maintains the three core dimensions of the Human Development Index (HDI) proposed by the United Nations Development Programme and uses the yearly average rates instead of normalized values. This way, we are able to define yearly average rate of human development (YARHU) of the considered country. The methodology is applied to the case of Romania for the 1899-1999 period. The period belongs to two Kondratieff cycles of Romania's economy (1888-1947 and 1948-1999). The results reveal a moderate dynamics of human development during the considered century in the context of adverse external shocks and contradictory internal structural changes. The dynamics of human development during the 1899-1947 period was slower in comparison to the 1948-1999 period. During the 1899-1947 period, the educational indicators, i.e. the literacy degree and enrolment degree, contributed significantly to the human development dynamics, while during the 1947-1999 period, the higher yearly average rate of human development was obtained especially due to the growth of the gross domestic product per capita.*

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JEL Classification: *I15, I21, I25, I31, J11, N30, O15*

Introduction

The Human Development is one of the main economic concepts, which were defined in the early 1990's and then proved to be viable from the theoretical point of view and useful for the practioners of international comparisons. The concept issued from the need to detect a linkage between the economic growth and the quality of life. Starting in 1990, the United Nations Organization has computed and published every year the

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Human Development Index (HDI), which is an operationalization of the concept of Human Development.

1. The Concept de Human Development. Measurement indicators

The publication by the United Nations Development Programme (UNDP) of the first Report on Human Development (1990) imposed the concept of "Human Development" and of the indicator "Human Development Index". The above-mentioned conceptual-methodological innovation was a result of long - term efforts of the theorists of Welfare Economics. E. Stanton (2007) emphasized that the first preoccupations concerning Welfare Economics can be found in the writings of J. Bentham (the late 18-th century), which show that human actions are determinate by pleasure and pain and their results can be defined as "utility". The concept of utility was developed and nuanced both by classical and neo-classical economists during the next two centuries¹

In the second part of the 20-th century, A. Sen criticized some of the "classical assumptions" and changed the paradigm related to utilities. Therefore, the above-mentioned economist defined the concept of capability and proposed the capability approach to welfare. The capabilities refer to the abilities of a person or a group of persons to undertake actions which determine a desirable outcome. The capabilities refer to material conditions of living, health status, social integration, environment control, etc. (E. Stanton, 2007).

The capability approach was used to define the concept of human development. The theorists of welfare economics built the Human Development Index (HDI), based on synthetical indicators related to: a) the level of incomes (gross domestic product per capita, usually expressed in USA Dollars), b) the level of education (a composite index of literacy degree of the pre- active, potentially active and post- active population² and of the enrolment degree³) and c) the health status of the population (life expectancy at

¹ At the beggining of the 19-th century, the social welfare was seen as a sum of utilities. During the 19-th century the most important contributions to the definition and study of the utilities were made by J. S. Mill (the utilities are differentiated and hierarhized depending on the social-historical context) and by the neo-classical economists which studied the maximization of utilities under the conditions of limited rессources and defined the concept of marginal utility. In the first half of the 20-th century, the most important theorists of welfare economics were V. Pareto and A. C. Pigou by studying the factors of living standard.

² The literacy degree is usually defined as the share of the literate persons in total number of persons older than 12 years.

³ The enrolment degree is defined as the share of the school population in the whole population.

birth). This way, it is possible to reveal the correlation of the level of economic development and the capability of society to ensure the well-being of its members.

The aggregation of the above-mentioned indicators in the Human Development Index is possible by providing equal weights to the considered components, respectively one third. In order to make international comparisons in conditions of different units of measure of the three components, the statistical data are normalized. The normalization of the statistical data allows us to obtain values comprised between 0 and 1 for each component.

Hence, the Human Development Index for a country j (HDI_j) is given by the formula:

$$HDI_j = \frac{PIB_{jnorm} + ED_{jnorm} + LE_{jnorm}}{3} \quad (1)$$

where:

PIB_{jnorm} = normalized value for the gross domestic product per capita

ED_{jnorm} = normalized value for the education composite index

LE_{jnorm} = normalized value for the life expectancy at birth

$$ED_{jnorm} = (2/3) * LIT_{jnorm} + (1/3) * ENR_{jnorm} \quad (2)$$

LIT_{jnorm} = normalized value for the literacy degree

ENR_{jnorm} = normalized value for the enrolment degree

We notice that the above-mentioned index seemed to be interesting not only for the study of the present-day development gaps, but also for the analysis of the correlations of the economic growth and the quality of life from the historical point of view. Therefore, N. F. R. Crafts (1996) estimated the human development index for a series of countries from Europe, Asia, North America and South America in 1870, 1913, 1950, 1970 and 1992¹. The above-mentioned working paper considers three of the initial simple

¹ The 1870-1913 period is considered by the historians as one pertaining to the second Industrial Revolution, while the year 1950 marks, in many countries, the end of postwar reconstruction and the beginning of a period of fast economic growth, based in many cases, on the import substitution and the extension of industrial structures. The year 1992 is not only one of the early years of the publication of the Human Development index by UNDP, but also the first year when reforms programmes related to the second transition to the market economy were implemented in all the former member-countries of the COMECON and also in other south-east European countries. Among the countries, which are taken into account in N .F. R. Crafts (1996) we mention Australia, United Kingdom, France, Germany, Denmark, Finland, Italy, Switzerland, Canada, Japan, United States of America, Mexico, Argentina, Brazil, Chile. In this

indicators used for the computation of the HDI (gross domestic product per capita, life expectancy at birth, literacy degree) and the average schooling years instead of the enrolment degree. The respective change was made because the most difficult problem in the estimation of the HDI during the analysed period were related to the educational attainment.

Among the main advantages of the computation methodology of the HDI we can notice: a) the easiness of computation formula, b) the possibility to make international comparisons, c) the fulfilment of theoretical assumptions related to human development, d) the considerable diminution of the collinearity of the components related to human development.

The HDI can be criticised because: a) there are theoretical shortcomings of the considered indicators. Therefore, the gross domestic product per capita does not reveal the structure of economy, the quality of natural environment, the features of incomes distribution and the interdependency with the world economy. The indicators used in the case of education attainment are directly related to quantitative aspects and reveal only implicitly the quality of the educational system. Also, it considers only the literacy degree of the population and not the diversification of the professional abilities of the active and post-active population in the context of the ample transformation of the educational systems.; b) the indicators which are taken into account conceptualize the human development having in view especially the experiences of consolidated market economies from Northern Hemisphere. Consequently, the respective countries appear to be advantaged when the international comparisons are made; c) the normalization procedure, beyond the advantage of building a composite index, has also the disadvantage of highlighting only the differentiation between the maximum and the minimum level and does not reveal other features of the differentiation of the considered indicators; d) the possibility of compensation of negative with positive aspects of human development; e) the focus on the quantitative aspects and on small number of indicators

working paper, the Human Development Index is built considering the level of gross domestic product per capita, life expectancy at birth, literacy degree and average schooling years. Among the findings of the above-mentioned paper we mention the high rank correlation of the Human Development Index and the gross domestic product per capita, *i.e.* - 0.898 in 1870, 0.924 in 1913, 0.915 in 1950 and 0.936 in 1992. It is revealed that in conditions of the levels of human development as defined in 1992, all considered countries, excepting Australia, could be considered as low-developed in 1870, and no analyzed country could be considered as a developed one in 1913. The high level of human development was attained by 12 countries in 1950 and by 40 countries in 1992. Also, the paper emphasizes the positive impact of the income increase on the life expectancy at birth and the fact that the structure of public expenditures had a non-negligible impact on human development.

ignores some qualitative aspects or the features of the institutional framework, such as the guarantee of the right to private property, civil freedoms or social cohesion; f) demographical structure may significantly influence the HDI level

Starting with the Human Development Report 2010, important changes were made in the way of computation of the HDI. The educational attainment is determined by considering the average schooling years and the expected schooling years. Also, for the income component the national income per capita is used instead of the gross domestic product per capita.

Another methodological innovation is the use of the weighted geometrical mean instead of the arithmetical mean for the aggregation of the three core dimensions. Theoretically, this way, it is possible to avoid a perfect substitution among the components of the HDI and implicitly to compensate for the poor performances in one dimension with better ones in another dimension. Also, the new form of Human Development Index allows us to show not only the marginal contribution of each dimension to the respective index, but also the interdependence between the respective marginal contribution and the indicators of the other dimensions (S. Anand, 2018).

We also note that the use of weighted geometrical mean for the aggregation of the three core dimensions leads to lower values of the HDI in comparison with the case when the weighted arithmetical mean is used.

But one of the main disadvantages of the use of the weighted geometrical mean for the aggregation of a composite index occurs when one of the components is equal to zero. In this case the composite index is also equal to zero irrespective of the values of the other components. Also, the use of weighted geometrical mean for aggregation makes the Human Development Index very sensitive to the chosen lower bound for the simple indicators. This problem does not occur if the weighted arithmetical mean is considered (S. Annand, 2018).

We may not ignore that HDI was defined in a transversal vision only for the ranking of countries for which statistical data are available for the indicators synthetically defining the human development in a given year.

Consequently, to highlight the progress of a country in the field of human development during a historical period it is necessary to transpose the building principles of HDI into a longitudinal (long time series) vision.

2. Transposition of Human Development Index into a longitudinal vision

The proposal for the transpose of the Human Development Index into a longitudinal vision maintains the three dimensions, previously considered, namely: a) the level of

economic development, b) the extension of education system and the educational level of the population and c) the health status of the population.

Because the main objective of the longitudinal vision is to reveal the progress of human development made by a country during a considered historical period, we will use the yearly average rate of growth instead of normalized values.

In order to highlight the dynamics of the level of economic development we use the yearly average rate of growth of gross domestic product per capita.

For the assessment of the progress made by the education system we maintain the indicators taken initially into account by the HDI in the transversal vision, *i.e.* the literacy degree and the enrolment degree.

The life expectancy at birth is maintained as the synthetical indicator of the health status of the population.

We notice that the simple indicators used in case of longitudinal vision are the same with those of the Human Development Index corresponding to the 1990-2009 period. The appeal to the respective indicators is determined by their availability in the long-term statistical bases and by the relative easiness of their estimation.

On the basis of the above-mentioned indicators and their weighting we are able to define the yearly average rate of human development (YARHU).

The weightings of the components of the YARHU are similar to those used in case of the HDI. Therefore, we maintain the equal weightings of one third for the indicator of economic development, composite indicator of the education system development and the indicator of the health status of the population.

But an important component of the definition of the YARHU is the method of aggregation of the simple indicators into a composite one. We may use the weighted arithmetical mean or the weighted geometrical mean.

The main argument in favour of the appeal to arithmetical mean is that, this way, we are in line with the initial methodology used for the computation of the HDI.

The use of the geometrical mean is sustained by the fact that we consider the yearly rate of four simple indicators, which indirectly reveals the geometrical mean of yearly indices. Consequently, if we appeal to the weighted geometrical mean for the aggregation of simple yearly rates, we are in a situation of a steady use of the above-mentioned type of mean.

In order to respect the methodological rigour, we plead for the definition of YARHU in two variants, namely: a) aggregated by the weighted arithmetical mean (YARHU_{warth}) and b) aggregated by the weighted geometrical mean (YARHU_{wgeom}).

The difference (YARHU_{warth} - YARHU_{wgeom}) offers indications on the diversification of the yearly rates of the considered simple indicators.

Hence, we may define the following computation formulae:

$$YARHU_{warth} = \frac{rGDPc}{3} + \frac{rENR}{9} + 2 \cdot \frac{rLIT}{9} + \frac{rLE}{3} \quad (3)$$

and

$$YARHU_{wgeom} = \left(\sqrt[3]{(1 + rGDPc) \cdot (1 + rENR)^{\left(\frac{1}{3}\right)} \cdot (1 + rLIT)^{\left(\frac{2}{3}\right)} \cdot (1 + rLE)} \right) - 1$$

where:

rGDPc= yearly average rate of the gross domestic product per capita

rENR = yearly average rate of the enrolment degree

rLIT = yearly average rate of the literacy degree

rLE = yearly average rate of life expectancy at birth

The use of the yearly average rate of human development has the advantage of the easiness of computation, on one hand, and of the elimination of the restrictions imposed by the definition of the upper and lower bounds for each of the considered indicators. This way, we are able to compare the dynamics of one of the most important indicators of economic and social development during the stages of an historical period of the analysed country. The main disadvantage of this method is that we are not able to make international comparisons.

The interpretation of the yearly average rate of human development and of its components has to consider the features of the each of the stages of the analysed historical period. We may note that for each of the four simple indicators, we may identify both periods of fast growth and periods of slow growth or even stagnation. The fast growth of the above-mentioned indicators is usually generated by the initial low-level economic and social development or is the outcome of successful economic or/and social reforms. The slow growth or stagnation appears as a result of economic

and social blockages or the attainment of the steady state related to economic growth, massification of educational activities and healthcare systems operation.

As we mentioned above, the implementation of the proposed methodology in case of the long -run analysis is conditioned by the availability of statistical data for all the four simple indicators, which act as components of HDI. In the case of Romania, three of the respective indicators can be yearly computed by means of Statistical Yearbook and books or articles dedicated to economic and social modern and contemporary history (gross domestic product per capita, enrolment degree, life expectancy at birth). The literacy degree can be rigorously computed only on the basis of data of the Censuses of Population. In this context, we will further determine the YARHU, for the 1899-1999 period, considering the data of the Population Censuses. It is to note that during the analysed century public authorities organized Population Censuses in 1899, 1912, 1930, 1948, 1956, 1966, 1977, 1992 and 2002.

2. Features of Romania's economic and social history during the 1899-1999 period

In Romania's history, the 1899-1999 period may be viewed as a century when two Kondratieff long economic cycles developed. Considering F.M. Pavelescu (2016a) the 1899-1947 period may represents the most important part of the second Kondratieff cycle of Romania's modern economy, which lasted from 1888 to 1947, while the 1948-1999 period represents the third Kondratieff cycle of Romania's modern economy¹.

The second Kondratieff cycle (1888-1947) can be divided into two phases, namely:

A) **An upturn phase (1888-1918)**, when the objectives of the first transition to market economy were fulfilled, with the exception of the agrarian relationship. In other words, at the end of the 19-th century, market mechanisms and social institutions, which are compatible with those built in developed European countries, functioned in near all the non-agricultural economic branches. The agriculture was the most important economic branch from the viewpoint of both of creation of the gross domestic product and of the employment of active population. But in the agriculture, the feudal type reminiscences of the property relationship were not yet eliminated. We may consider that Romania's first transition to market economy ended in 1921, when the Law of the Land Reform was adopted.

¹ F.M. Pavelescu (2016 a) considers that the first Kondratieff cycle of Romania's modern economy lasted from 1831 to 1887, with an upturn phase from 1831 to 1858 and a consolidation phase from 1859 to 1887.

On the basis of the fluctuations of the gross domestic product estimated in V. Axenciuc (2012) we are able to detect three decennial economic cycles: a) 1888-1897, b) 1898-1907 and c) 1908-1918¹. The events which lead to the respective periodization are: 1) the 1898-1899 financial crisis and 2) the 1907 peasants' uprising. We notice that in 1899 and 1907, the gross domestic product decreased in real terms.

The economic development was accompanied by important changes of the institutional framework with sensible impact on the human development. Therefore, public authorities initiated and successfully implemented a series of reforms with positive effects on the educational system, both on the short and long run. On the one hand, the implementation of the law on primary education of 1896 significantly improve the access to primary education in rural areas and the quality of the courses. Also, the respective reforms increased the professional level of the teachers. On the other hand, the law of 1898 reformed the secondary and higher education, while the law of 1899 reformed the vocational education. The above-mentioned legislative changes allowed for the modernization of the respective field of activity. Also, the reforms are in line with the trends manifest in Europe.

In 1910, the Parliament voted a new law on healthcare, which was elaborated considering the opinions of the different actors involved in the healthcare system and also the practical experiences accumulated in Romania during the previous decades. In fact, the above-mentioned law practically created a new institutional framework, which contributed to an increased efficiency of the healthcare system.

Consequently, the legislative changes related to education and healthcare favoured Romania's human development at the beginning of the 20-th century.

¹ The decennial cycle 1908-1918 is a special one in Romania's economic history because we can distinguish two distinct periods, namely: a) 1908-1913 and b) 1914-1918.

During the 1908-1913 period, there were both a boom of the Romanian economy and a sensible increase in number of population due to the birth rate increase and to immigration from Romanian provinces included in Habsburg and Tsarist Empires, on the one hand, and from other European countries, on the other hand.

During the 1914-1918 period, Romania's economic and social situation was profoundly negatively influenced by World War I. The damages caused by military operations and by the occupation of an important part of the country by the Central Powers led to a sharp decrease in the economic potential and implicitly the decrease of the gross domestic product per capita. In the same time, the educational activities registered considerable blockages and the health status of the population sensibly worsened.

B) **A consolidation phase (1919-1947)**, when the market mechanisms dominated and institutional framework was in concordance with those established in western European countries.

During the interwar period (1919-1939), Romania saw a moderate progress in economic development and social modernization. The economic growth was stimulated by the extension of the national market as an outcome of the Great Union of 1918. The protectionist policy encouraged the development of the industry and contributed to an important increase in the social labour productivity.

The favourable internal premises for economic and social development were in contrast with adverse external shocks, especially the 1929-1933 economic crisis and the World War II. For these reasons, we can identify three quasi-decennial cycles during the consolidation phase of the second Kondratieff cycle of Romania's economy: 1) 1919-1928, when a fast economic growth was registered; 2) 1929-1939, interval of time marked by the 1929-1933 crisis and by the 1934-1939 economic boom; 3) 1940-1947, the World War II and the first post-war years.

The public authorities made consistent efforts to implement new laws and to change the institutional framework in order to improve the public education system and the healthcare system. Therefore, the education system was updated at the new economic and social situation after the World War I, in the context of the unification and national coordination of the essential public services. The reform of the education was gradually made by the law of primary education of 1924, by the law of secondary education of 1928 and by the law of higher education of 1932. This way, favourable premises occurred for the growth of both the enrolment degree and the literacy degree.

In 1930, a new law on healthcare was adopted. The respective legislative change was correlated in a way with the administrative reform voted the same year and was inspired by the modern principles manifest in Europe during the 1920's. Also, the law ensured a balance of the prerogatives granted to central and local authorities in order to improve the health status of the population. A special attention was paid to the healthcare in the rural areas. Thus, favourable premises for the human development occurred. But the success of the respective reforms was limited. Especially in the field of healthcare and quality of life the gaps between Romania and western European developed countries remained quite large.

The breaking off of the World War II sensibly worsened the economic and social situation in Romania. The war caused important damages to economic potential and to infrastructure. The Paris Peace Treaty (1947) imposed Romania to pay considerable war compensations.

The third Kondratieff long cycle of Romania's modern economy is closely related to the experiment of command economy and to the most important part of the second transition to market economy. According to F. M. Pavelescu (2016 a) we may detect two great phases of the above-mentioned Kondratieff cycle:

- a) **An upturn phase (1948-1976)**, with two quasi-decennial cycles, namely, 1) 1948-1962 period, when the transition to command economy took place, and 2) 1963-1976 period, when the command economy consolidated;
- b) **A downturn phase (1977-1999)**, with two quasi-decennial cycles, namely, 1) 1977-1989 period, marked by the growing blockages and open crisis of command economy, and 2) 1990-1999 period, when the most important part of the second transition to the market economy was implemented¹.

The premises for the human development during the third Kondratieff Cycle of Romania's modern economy were contradictory. During the upturn phase (1948-1976), due to favourable conditions for an extensive economic growth, based on the stimulation of the industrialization process, the imports substitution, the mobilizing force of the command economy and the favourable demographic structure, Romania experienced a fast economic growth and a considerable improvement of the healthcare system. The evolution of the education system was marked by two contradictory reforms in 1948 and 1961².

During the downturn phase of the third Kondratieff cycle, the conditions for an increase in the level of human development were unfavourable. Especially, during the 1980's, the more persistent blockages and then the crisis of the command economy determined a slower economic growth and even a deep recession in 1989. The austerity measures adopted in the context of forced external debt reimbursement generated unfavourable

¹ We may consider that the second transition to the market economy ended in 2004, when the level of the gross domestic product was higher, in real terms, in comparison with that registered in 1989, the last year of command economy, on the one hand, and European Commission, International Monetary Fund and World Bank appreciated that Romania's economy was a functional market one, on the other hand.

² In August 1948, the public authorities implemented a reform of the education system inspired by the principles of Marxism-Leninism and the Soviet experience, which caused a sharp break of the valuable traditions created or consolidated during the interwar period. This institutional change generated profound negative consequences on the training of the labour force. In the context of the reorientation of economic and social policy, during the 1960's, the public authorities initiated some legislative measures in order to improve the education system. Some interwar traditions were reevaluated, on the one hand, and positive new international experiences were integrated into the Romanian education system, on the other hand.

consequences for education and healthcare systems, in spite of several institutional changes adopted in the late 1970's¹. Consequently, the life standard worsened and blockages of human development occurred.

During the 1990's, the transformations required by the second transition to the market economy created premises for a predominantly recessionist climate and for acute tensions on the labour market, on the one hand. At the same time, in the context of enlarged international cooperation, the public authorities implemented reforms in the field of both education and healthcare system, on the other hand. This way, the respective systems became compatible with market economy practices.

The collapse of the command economy and of the social protection system associated with the respective economic mechanism caused unemployment, decrease of the birth rate in the same time with an important increase in the death rate. Thus, economic and social transformations determined important changes of the dynamics and structure of the demand for education. The enrolment degree decreased, mainly because of the increasing in abandon rate in the pre-university education and of the population ageing.

3. Dynamics of gross domestic product per capita

The dynamics of the gross domestic product per capita between 1899 and 1999 was sensibly influenced both by internal factors and by external shocks, such as World War I, World War II, and the second transition to the market economy. In fact, we deal with two Kondratieff cycles of sensible different types. Consequently, we have to interpret the dynamics of the gross domestic product per capita considering the changes in the institutional framework. For the computation of the dynamics of the analysed indicator we use the data presented in V. Axenciuc (2012). In the above-mentioned book, the data related to the level and dynamics of the gross domestic product and gross domestic product per capita are compatible with the System of National Accounts methodology. This way, it is possible to deal with comparable data for the whole

¹ The Parliament (Great National Assembly) adopted in 1978 new laws related both to the operation of education and to healthcare systems. In case of the education system, the new law was formally inspired by international recognized principles of a better correlation of the training processes with the labour demand generated by different economic and social activities. Actually, the implementation of the above-mentioned law contributed to an excessive technicization of the formal education activities and to the forced extension of the length of compulsory education. The new healthcare law was inspired both by national and international good practices and included principles which, theoretically, would improve the health status of the population. The implementation of the law was partial, mainly because of the austerity measures adopted during the 1980's.

analysed period. Also, we can express the level of the gross product per capita in an international currency widely accepted for the international comparisons.

For the 1899-1947 period, it is important to have in mind some features that influenced the dynamics of the gross domestic product per capita. Therefore, the years when the Population Census took place (1899, 1912, 1930 and 1948) were very different from the point of view of economic situation. In 1899, Romania's economy faced a deep recession which caused a sharp decrease of the gross domestic product per capita to 738 USA dollars at the 2000 purchasing power parity (USD PPP 2000) from 1061 USA PPP 2000 in the previous year. In 1912, there was an economic boom which led to the registration of one of the highest level of the gross domestic product per capita of the pre-World War I Romania, 1256 USD PPP2000, respectively (Annex 1). **Hence, the yearly average rate of the gross domestic product per capita during the 1899-1912 period was 4.18%.**

World War I caused considerable damages to the economic potential of Romania. In this context, in 1920, the gross domestic product per capita decreased to 761 USD PPP 2000, which was only 3.11% higher in comparison with 1899. **Thus, during the 1912-1920 period the yearly average rate of the analysed indicator was -6.07%.**

During the interwar period, the above-mentioned indicator moderately increased and reached 1097 USA PPP 2000 in the 1930 and 1164 USD PPP 2000 in 1939. In this context, **the yearly average rate of the gross domestic product per capita was 3.72% during the 1920-1930 period and 0.66% during the 1930-1939 period.**

The World War II and the first post-war years caused more damages of the economy potential. Under these conditions, in 1947, the gross domestic product per capita decreased to 777 USD PPP 2000. The respective level was only 7.14% higher in comparison with 1899. Hence, **the yearly average rate of the gross domestic product per capita was -4.93% during the 1939-1947 and 0.11% during the 1899-1947 period.**

Because of the adverse large scale impact of the two World Wars on Romania's economic potential make necessary, we have to consider not only the years of the population censuses but also the year 1920 and the year 1939. This way, we are able to reveal the dynamics of Romania's human development in the favourable international context of peace, on the one hand, and the profoundly negative impact of the two World Wars, on the other hand.

The analysis of the yearly average rate of the gross domestic product per capita during the 1948-1999 period has to consider the features of the command economy and of the second transition to market economy. The command economy

was a relatively efficient economic mechanism for the mobilization of the labour resources from rural areas and their allocation to the industrial activities at the expense of hard repression of private property and entrepreneurship. By creating the favourable conditions for a forced industrialization, the command economy generated high rates of economic growth on a concave trajectory during the 1947-1977 period. According to V. Axenciuc (2012), the gross domestic product per capita was estimated at 1994 USD PPP 2000 in 1956, at 4075 USD PPP 2000 in 1966 and at 8233 USD PPP 2000 in 1977. Thus, **the yearly average rate of economic growth per capita was 11.04% during the 1947-1956 period, 7.41% during the 1956-1966 period and 6.60% during the 1966-1977 period. As whole, during the 1947-1977 period, the yearly average rate of economic growth per capita was 8.19%.**

In the context of the downturn phase of the third Kondratieff cycle (1977-1999), marked by the crisis of the command economy and the second transition to market economy, the gross domestic product per capita was 7376 USD PPP 2000 in 1992 and 7764 USD PPP 2000 in 1999. Hence, the yearly average rate of gross domestic product per capita was -0.73% during 1977-1992 period and 0.74% during 1992 -1999 period. So far, the yearly average rate of economic growth per capita was **-0.27% during the 1977-1999 period and 4.53% during the 1947-1999 period. For the whole period 1899-1999 period we may estimate a yearly average rate of economic growth per capita of 2.38%.**

4. Evolution of the enrolment degree

During the 1899-1999 period, the reforms of education and training system and the economic and social development acted stimulated the growth of the enrolment degree. On the basis of the data presented in Romania's Statistical Yearbook, we estimate that the respective indicator was 6.24% during the 1899-1900 school year, 9.36% during the 1912-1913 school year, 10.56% during the 1920-1921 school year, 13.56% during the 1930-1931 school year, 14.44% during the 1937-1938 school year and 13.87% during the 1948-1949 school year (Annex 1).

We assume that the enrolment degree in the 1938-1939 school year was similar to the 1937-1938 school year. Also we admit that the analysed indicator related to 1947-1948 school year was similar to that registered in 1948-1949 school year.

Hence, the yearly average rate of growth of the enrolment degree was 3.17% during 1899-1912 period, 1.52% during the 1912-1920 period, 2.53% during the 1920-1930 period, 0.79% during the 1930-1939 period and -0,50% during the 1939-1947 period. The yearly average rate of growth of the above-mentioned indicator was 1.66% for the period 1920-1947 and 1.68% for the whole period 1899-1947.

During the upturn phase of the third Kondratieff cycle, due to the extension of the length of the compulsory education and of the favourable demographic structure, the enrolment degree saw a growth trend. Therefore, the respective indicator was 12.75% during the 1955-1956 school year, 21.56% during the 1956-1966 school year and 24.70% during the 1976-1977 school year. Hence, the yearly average rate of growth of the enrolment degree was -1.20 % during the 1947-1956 period, 5.39% during the 1956-1966 period and 1.37 % during the 1966-1977 period. On the whole 1947-1977 period the respective yearly average rate was 1.94%.

In the context of the downturn phase of the above-mentioned Kondratieff cycle the enrolment degree diminished, due to the unfavourable changes of demographic structure and to economic difficulties faced by large social categories of population. The above-mentioned indicator decreased to 20.73% in 1991-1992 school year and at 20.39% during 1999-2000 school year. Therefore, the yearly average rate was -1.16% during the 1977-1992 period, -0.24% during the 1992-1999 period and -0.87% during 1977-1999 period. We note that the yearly average rate of growth of the enrolment degree was 0.74% during 1947-1999 period and 1.19% during 1899-1999 period.

5. The evolution of the literacy degree

The literacy degree constantly grew in the first half of the 20-th century. Data of the Population Censuses reveal that the respective indicator was 22.0% in 1899, 39.2% in 1912, 57.1% in 1930 and 76.9% in 1948 (Annex 1). This evolution was the outcome of the education system development and was line with the European trends. We notice that even the continuous increase in the literacy degree was a positive evolution, the level of the respective indicator highlights that the problem of illiteracy was not solved during the above-mentioned period.

For 1920 we appreciate that the indicator was around 40%, based on the data of Romania's Population Census of 1912 and the data published in C. Ungureanu (2005) related to the literacy degree in the Romanian provinces at the beginning of the 20-th century and a yearly average rate of growth of the respective indicator equal to 0.25%, during the 1912-1920 period. For 1939 we estimate a literacy rate as equal to 67% representing the arithmetical mean registered at Censuses of 1930 and 1948.

Hence, the yearly average rate of growth of the literacy degree was 4.55% during the period 1899-1912, 0.25% during the 1912-1920 period, 3.62% during the 1920-1930 period, 1.79% during the 1930-1939 period and 1.74% during 1939-1947 period. The above-mentioned indicator was 2.75% during 1920-1939 period and 2.64% during the 1899-1947 period.

The literacy rate continued to grow during the second half of the 20-th century. According to the data of Population Censuses the respective indicator was 82.2% in year 1956, 89.2% in year 1966, 90.7% in year 1977, 95.3% in year 1992 and 99.9% in year 2002. Based on the trend during the 1992-2002 period, we estimate a literacy degree equal to 98.5% in year 1999.

Consequently, the yearly average rate of the analysed indicator was 0.82% during the 1947-1956 period, 0.82% during the 1956-1966 period, 0.15% during the 1966-1977 period, 0.33% during the 1977-1992 period and 0.47% during the 1992-1999 period. The above-mentioned yearly average rate was 0.55% during the 1947-1977 period, 0.38% during 1977-1999 period, 0.47% during 1947-1999 period and 1.51% during 1899-1999 period.

6. Evolution of the life expectancy at birth

V. Gheţău (1978) shows that, in the case of Romania, the first estimation of the life expectancy at birth is related to the 1899-1901 period and mainly based on the data of the 1899 Population Census. The respective indicator was 36.4 years. During the first half of the 20-th century the life expectancy at birth grew moderately, being estimated at 39.6 years during the 1909-1912 period and at 42.0 years during the 1930-1932 period. Data presented in Gh. Dobre, coord. (1997) reveal that the respective indicator was 54.7 years during the 1947-1948 period (Annex 1). The statistical data presented in F. M. Pavelescu (2016b) show an improvement of the indicators concerning the death rate and the health status of the population in 1920 in comparison with 1912 and in 1938 in comparison with 1930. Consequently, we assume that the life expectancy at birth was 40 years in 1920 and 44 years in 1939.

Therefore, the yearly average rate of the analysed indicator was 0.65% during the 1899-1912 period, 0.13% during the 1912-1920 period, 0.49% during the 1920-1930 period, 0.52% during the period 1930-1939 and 2.76% during the 1939-1947 period. We notice that the yearly average rate of life expectancy at birth was 0.50% during 1920-1939 period and 0.85% during the 1899-1947 period.

The increase in the life expectancy at birth occurred under the conditions of widening of the gender gap in favour of women during the 1899-1930 period. Therefore, the ratio of life expectancy at birth of women to life expectancy at birth of men, which may be considered as an indicator of the gender gap, was 102.22% in 1899-1901, 102.30% in 1909-1912 and 103.40% in 1930-1932. From 1930 to 1947, life expectancy at birth grew with 12.7 years, in the same time with a lowering of the gender gap to 102.40% in favour of women.

Among the main causes of the lower life expectancy at birth during the period 1899-1947, in comparison with developed European countries, we notice the precarious healthcare institutions in rural areas and the high rate of infant mortality.

The implementation of a healthcare system in line with the requirements of command economy generated, in spite of the repression of the private property and entrepreneurship, a growth with 8.5 years of the life expectancy at birth, during the 1947 – 1956 period. In the next decades, the above-mentioned indicator grew on a concave trajectory. The life expectancy at birth was estimated at 63.17 years in 1956, at 68.51 years during the period 1964-1967 and at 69.76 years in 1977. The progress of the life expectancy at birth was manifest especially in case of women. The gender gap in favour of women constantly widened from 105.71% in 1956, to 106.11% in 1966 and to 106.83% 1977.

During the 1977 -1999 period, the life expectancy at birth stagnated or even diminished. Therefore, the respective indicator was 69.78 years in 1992 and 69.74 years in 1999. The decrease in the life expectancy at birth was mainly caused by the worsening of the economic and social situation. Statistically, this evolution was determined by the health status of the male population. The life expectancy at birth for men was 67.45 years in 1977, 66.56 years in 1992 and 66.05 years in 1999 (Annex 1). On the contrary, the life expectancy at birth in case of female population grew from 72.06 years in 1977 to 73.17 years in 1992 and to 73.67 years in 1999. Consequently, the gender gap in favour of women grew at 109.93% in 1992 and at 111.54% in 1999.

The lowering trend of the life expectancy at birth occurred in the context of the decrease of the infant mortality rate from 31.4‰ in 1977, to 23.3‰ in 1992 and to 18.6‰ in 1999, on the one hand, and of increase of the death rate from 9.6‰ in 1977 to 11.6‰ in 1992 and to 11.8‰ in 1999, on the other hand.

In conclusion, we may detect a growing trend of the life expectancy at birth during the 1947-1999 period on concave trajectory. Therefore, the yearly average rate of the respective indicator was 1.62%, during 1947-1956 period, 0.81% during 1956 – 1966 period, 0.16% during 1966 – 1977 period, 0,0% during 1977 - 1992 period and -0,0% during 1992-1999.

Hence, during the 1947-1999 period, the life expectancy at birth grew at an yearly average rate of 0.47%, while during the 1899-1999 period the respective indicator grew at an yearly average rate of 0,65%.

7. Computation of the yearly average rate of human development

On the basis of the dynamics of the four indicators we are able to reveal the dynamics of the human development of Romania. The yearly average rate of human development (YARHU) during the 1899-1999 period was 1.48% either the weighted arithmetical or the geometrical mean is used for aggregation of the simple economic and social indicators (Table1). At the first sight, we deal with a moderate evolution of the capabilities of the Romanian citizens to improve their standard of living. The most important contribution to the respective dynamics was made by the growth of the gross domestic product per capita at a yearly average rate of 2,38%.

In the same time, we should not ignore the growth of the indicators related to education. Thus, the literacy degree saw a continuous growth during each decennial cycle and has the second important contribution to the YARHU concerning the 1899-1999 period.

Table1. Average yearly rates of Human Development during the 1899-1999 period

%

Period	rGDPc	rENR	rLIT	rLE	rHD _{aritm}	rHD _{geom}
1899-1912	4.18	3.17	4.55	0.65	2.97	2.96
1912-1920	-6.07	1.52	0.25	0.13	-1.76	-1.80
1920-1930	3.72	2.53	3.62	0.49	2.49	2.48
1930-1939	0.66	0.79	1.79	0.52	0.88	0.88
1939-1947	-4.93	-0.50	1.74	2.76	-0.39	-0.45
1947-1956	11.04	-1.20	0.82	1.62	4.27	4.16
1956-1966	7.41	5.39	0.82	0.81	3.52	3.48
1966-1977	6.60	1.37	0.15	0.16	2.44	2.40
1977-1992	-0.73	-1.16	0.33	0,00	-0.30	-0.30
1992-1999	0.74	-0.24	0.47	0,00	0.32	0.32
1899-1920	0.15	2.54	2.89	0.45	1.12	1.12
1920-1939	2.26	1.66	2.75	0.50	1.72	1.71
1920-1947	0.08	1.04	2.45	1.17	1.08	1.07
1899-1947	0.11	1.70	2.64	0.85	1.10	1.09
1947-1977	8.19	1.94	0.55	0.82	3.34	3.28
1977-1999	-0.27	-0.87	0.38	0,00	-0.10	-0.10
1947-1999	4.53	0.74	0.47	0.47	1.85	1.84
1899-1999	2.38	1.19	1.51	0.65	1.48	1.48

Computed on the basis of the data presented in Annex 1.

The dynamics of the human development was not linear. During the first half of the 20-th century, the above-mentioned dynamics is slower in comparison with the evolutions

observed during the second one. Also, the pattern of the contributions of the economic indicator, on the one hand, and of the social indicators on the dynamics of human development, on the other hand, are quite different during the first and second half of the analysed period.

Therefore, during the 1899-1947 period, YARHU was about 1.10%. An explanation for this evolution is Romania's implication in the two World Wars and the moderate economic growth during the interwar period.

In this context, the main contribution to the dynamics of human development was made by the progress of the educational system, even if the literacy degree maintained lower in comparison with the developed European countries.

Also, we notice that, during the whole 1899-1947 period, the growth rate of life expectancy at birth was higher in comparison with the growth rate of gross domestic product per capita.

The faster human development emphasized during the second half of the 20-th century is essentially linked with the extensive economic growth achieved in the context upturn phase of the third Kondratieff cycle of Romania's economy. The respective period took advantage of the impact of the forced industrial structure building and of a partial favourable external environment which permitted enlarged international economic cooperation. The downturn phase of the above-mentioned long economic cycle was marked by the stagnation of the human development caused by the crisis of the command economy and by the deep structural adjustment generated by the second transition to the market economy. The main contribution to the dynamics of human development was made by the impressive growth of gross domestic per capita, especially during the upturn phase of 1947-1977. The downturn phase of 1977-1999 is defined by a low YARHU caused by an unstable dynamics of gross domestic product per capita and a trend of decrease of the considered social indicators.

In conclusion, we mention that between 1899 and 1999, Romania experienced a moderate human development in line with the major trends manifested in Europe. Some of the economic and social gaps in comparison with the developed countries were lowered, especially those related to the formal education.

We may identify some similarities between the pattern of dynamics of human development in Romania and the patterns of economic and social development in Latin

America during the 20-th century, revealed in P. Astorga, A. R. Bergès, and V: FitzGerald (2004)¹.

Thus, we notice that Romania's human development was conditioned by the existence of a stable economic environment and was negatively affected by adverse external shocks or internal blockages and crisis. The industrialization process generated not only the ample structural change and intensification of economic activity but also significant improvements of the public services quality and of the social indicators such as life expectancy at birth or literacy degree due to the increase in the budgetary expenditures and to the territorial and professional mobility of the active persons. In the last two decades of the 20-th century, the crisis of command economy and the re-implementation of the market mechanisms caused the worsening of the economic and social indicators which are used to measure the human development.

¹ P. Astorga, A. R. Bergès, V. FitzGerald (2004) analyse the determinants of the features of the economic growth and of some important social indicators in Latin America during the 20-th Century. The authors reveal three sub -periods with significant different features of the economic and social development.

During the 1910-1940 period, the Latin American countries registered a moderate economic growth in the context of the market mechanisms dominance.

During the 1940-1980 period the economic growth accelerated and important positive structural changes were made. The respective evolution was obtained in the context of the promoting of an industrialization based on import substitution and other protectionist institutional arrangements. The above-mentioned economic strategy was accompanied by an increase of the public investments and other state interventions in the education and healthcare fields. Thus, the indicators of social situation registered considerable improvements.

During the last two decades of the 20-th century, the economic growth was slower and unstable. The respective evolution occurred in the context of the ample structural reforms dominated by liberalization paradigm and designed to sensibly diminish the inefficiency and distortions in production factors allocation generated in the long run by the more or less forced industrialization. Consequently, the social indicators related to human development registered a worsening trend.

Annex 1. The main indicators of Romania's Human Development during 1899-1999 period

Year	GDP per capita (USD PPP 2000)	Enrolment degree (%)	Literacy degree (%)	Life expectancy at birth (years)		
				Whole population	Men	Women
1899	738	6.24	22.0	36.4	36.1	36.9
1912	1256	9.36	39.2	39.6	39.2	40.1
1920	761	10.56	40.0*	40.0*
1930	1097	13.56	57.1	42.0	41.2	42.6
1939	1164	14.44	67.0*	44.0*
1947	777	13.87	76.9	54.7	54.15	55.35
1956	1994	12.75	82.2	63.17	61.48	64.99
1966	4075	21.56	89.2	68,51**	66.45**	70.51**
1977	8233	24.70	90.7	69,76	67.45	72.06
1992	7376	20.73	95.3	69,78	66.56	73.17
1999	7764	20.39	98.5*	69,74	66.05	73.67

*estimated by the author, ** 1964-1967 period

Sources: V. Axenciuc (2012), Gh. Dobre, coord. (1997), V. Gheău (1978), F.M. Pavelescu (2016b), F.M. Pavelescu (2016c), S. Perț coord. (1997), Romania's Statistical Yearbook

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