

# A Potential Romanian Statistical System of Useful Social Indicators

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## Abstract

*The harmonization of the national social indicators is a dynamic process that took into account both the European System of Social Indicators (EUSI), and the ONU Systems of Social Indicators. This paper simplifies the social indicators' presentation, and thus these are grouped according to the domain they belong to.*

**Key words:** *European System of Social Indicators (EUSI), Human Development Index (HDI), ONU Systems of Social Indicators, dimensions of social cohesion, sustainable and sustained human development.*

**JEL Classification:** *C10, C40, C80*

## Introduction

The statistical indicator is conceived as an instrument for concentrating and condensing the statistical data content with a view to decrypting the original informational message contained within the information. Detailed and conceptualized as social indicator, the statistical indicator synthesizes and concentrates the essence of a social process, or the essence of a process with profound social implications, from the demographical ones to those regarding the quality of life, such as individual incomes, expenses and consumptions at a household level or the general social ones, from services with clear social character, such as education, culture, health care, justice to workforce, from active, employed population and unemployment to electoral statistics. The informational system forms the basis of any decision, being conceived as a set of methods, procedures and means used in the network of transmitting and receiving messages. The more pronounced the territorial specificity of the social statistical indicators is or the more it becomes excessively nationalist, the more it moves away from the purpose of harmonization. At a national level, the social indicator system is built on the few principles clearly formulated by the NSI:

- the indicator content should reflect the major problems Romania faces with in focusing on the most important aspects of the social life;
- the social domains should be described through a relatively small number of indicators with high capacity of concentration and information (including increased promptness);
- the indicators selected on social domains should allow to highlight the interdependence between the different subdivisions of the system;

- the availability of statistical information for social policies, through the means of those indicators that focus on the majority of the social processes and phenomena.

The harmonization of the national social indicators is a dynamic process that should take into account both the European System of Social Indicators (EUSI), and the ONU Systems of Social Indicators. A fast/ rapid harmonization of the national social statistical indicators would lead to the improvement of the data quality, as well as the access speed, especially for the research that requires access to specific information to produce comparative tables for regions and statistical regions of EUROSTAT.

Modern European tendencies in statistics underline the part of welfare measurement, focusing the statistic activity on concepts like “quality of life” or “social cohesion”. Within the durable and sustainable development models, “human development” gains an importance similar to those of the previous concepts, together with its specific assessment instrument named “human development index”.

Through its recent activity, the EUROSTAT intensified its efforts within the research projects that aim especially at the development of the European System of Social Indicators (EUSI). All these modern statistical concepts regarding the quality of life, human development or social cohesion derive from and make use of social indicators defined and quantified by EU Member States or Candidate Member States.

The dimensions of social cohesion are defined on the *antinomy principle*:

- belonging/isolation (regarding the values of communication, including identities and feelings);
- inclusion/exclusion (regarding the access to equal chances and opportunities);
- involvement/non-involvement (with emphasis on tolerance and respect for diversity characteristic to democratic and pluralist societies).

The practical measurement of these conceptual dimensions requires two main categories of *indicators* able to assess successfully and promptly:

1. reduction of disparities (differences), inequalities, and of internal social exclusion, (social statistical indicators define and measure regional disparities, inequalities between men and women, between generations, social structures, opportunities offered to disabled persons and minority, and also social exclusion phenomena);
2. the increase in the value and durability/sustainability of the social capital (specific statistical indicators define and measure the involvement in almost any type of activity, such as economic, social and political activity, the quality of social relations and of the social institutions, and even communitarian and national cohesion within EU).

## The Eleven Sub-Domains of the Social Indicators’ Synthesis

To simplify the presentation of the social indicators, these are grouped according to the domain they belong to. Then the main methods of calculation are described, the main data sources available in the national economy being mentioned.

The *first* social domain is that of territorial (geographical) isolation:

**Indicator I:** *The share of transportation costs in the total consumption expenditures per household* is calculated as the ratio of the transportation costs of the household to the total consumption expenditures of the household

$$P_{CHtr} = \frac{CH_{tr}}{CH_T} \times 100$$

(at household level)

where:  $CH_{tr}$  = the average transportation costs for the payment of urban and interurban transport, taxi, railway transport, air, , sea transport, water transportation, road transport and other types of transport and  $CH_T$  = average total consumption expenditures.

The data source is ABF specialized survey („budget family survey”), the data being published quarterly in *Income and consumption* or annually in *Living Standard Coordinates - Population Income, Expenditure and Consumption*. The data is available at a both regional and national level.

The second important domain, from the social point of view, is that of dwelling conditions.

**Indicator II:** The share of personal property in the total number of is defined as the percentage ratio of the number of private property dwellings to the total number of dwellings.

$$PI_p = \frac{NI_p}{NI_T} \times 100$$

where:  $NI_p$  = the number of private property dwellings and the dwellings owned by private capital companies and  $NI_T$  = total number of dwellings

**Indicator III:** The average number of persons per room is the total population in the reference year or at the reference moment per dwelling room number.

$$N_{PCL} = \frac{P}{Nc_L}$$

where:  $Nc_L$  = number of rooms and  $P$  = total population in the reference year or at the reference moment

**Indicator IV:** The living floor per person is the ratio of the living floor to the total population of the reference year or moment.

$$S_{I/P} = \frac{S_T}{P}$$

where:  $S_T$  = total living floor and  $P$  = total population of the reference year or moment

**Indicator V:** The share of dwellings endowed with bathroom or shower in the total number of dwellings is defined as the number of dwellings equipped with bathroom per total dwellings.

$$P_b = \frac{NI_b}{NI_T} \times 100$$

where:  $NI_b$  = the number of dwellings with bathroom and shower and  $NI_T$  = total number of dwellings.

**Indicator VI:** The weight of dwellings with running water in the total number of dwellings is the number of dwellings equipped with installation of water supply per total number of dwellings.

$$P_{ac} = \frac{NI_{ac}}{NI_T} \times 100$$

where:  $NI_{ac}$  = the number of dwellings with running water and  $NI_T$  = total number of dwellings.

**Indicator VII:** The share of dwellings with central heating per total number of dwellings represents the ratio of dwellings equipped with central heating to the total number of dwellings.

$$P_{heating}^{central} = \frac{NI_{heating}^{central}}{NI_T} \times 100$$

where:  $NI_{heating}^{central}$  = the number of dwellings with central heating and  $NI_T$  = the total number of dwellings.

**Indicator VIII:** The share of dwellings built before the year taken as reference year per total dwellings is assessed as the number of dwellings built before the reference year and the total number of dwellings.

$$P_{built}^{previously} = \frac{NI_{built}^{previously}}{NI_T} \times 100$$

where:  $NI_{built}^{previously}$  = the number of dwellings built before the reference year and  $NI_T$  = total number of dwellings.

**Indicator IX:** *The share of households with access to installations of hot water supply per the total dwellings* is obtained as the ratio of households in dwellings endowed with installations of hot water supply per total number of households.

$$PG_{\text{to hot water}}^{\text{access}} = \frac{NG_{\text{to hot water}}^{\text{access}}}{NG_T} \times 100 \quad \text{where: } NG_{\text{to hot water}}^{\text{access}} = \text{number of households with access to installations of hot water supply, } NG_T = \text{total number of dwellings}$$

**Indicator X:** *The share of households with indoor toilet room* is the ratio of households from dwellings with indoor toilet to their total number.

$$PG_{\text{room}}^{\text{indoor toi let}} = \frac{NG_{\text{room}}^{\text{indoor toi let}}}{NG_T} \times 100 \quad \text{where: } NG_{\text{room}}^{\text{indoor toi let}} = \text{number of households with indoor toilet room and } NG_T = \text{total number of dwellings}$$

Sources: *The most used data source is the census for its quality of exhaustive statistical research. Other specialized surveys are also used. The data is available, published and detailed in distinctive volumes of Census, one of them entitled "Population and Housing Census Monograph". Another annual paper, published by INS is "The Dwellings Stock".*

The *third* significant domain, a domain with important social consequences is that of earnings and labor's cost.

**Indicator XI:** *The average gross monthly salary* is the total gross sum of money per salary earner paid from the wages fund and other funds (exclusive of social insurance).

$$CSMB = \frac{S_{BFS} + S_{BPN} + S_{BAF}}{T} \quad \text{where: } S_{BFS} = \text{the gross sums of money monthly paid from the wages fund, } S_{BPN} = \text{gross sums of money monthly paid from the clear profit, } S_{BAF} = \text{gross sums of money monthly paid from other funds and } T = \text{monthly average number of salary earners.}$$

**Indicator XII:** *Average net monthly nominal salary* is the total gross sum of money per salary earner paid from the wages fund and other funds (exclusive of social insurance) from which the salary tax is deducted .

$$CSMN = \frac{(S_{BFS} + S_{BPN} + S_{BAF}) - I}{T} \quad \text{where: } S_{BFS} = \text{gross sums of money monthly paid from the wages fund, } S_{BPN} = \text{gross sums of money monthly paid from the clear profit, } S_{BAF} = \text{gross sums of money monthly paid from other funds, } I = \text{average salary tax, social insurances and unemployment and } T = \text{monthly average number of salary earners.}$$

**Indicator XIII:** *Average monthly cost of labour* can be identified with the totality of the average costs paid by the economic units or by employers for the employment of labour per salary earner.

$$CH_{LF} = \frac{CH_{FS}}{T} \quad \text{where: } CH_{FS} = \text{total cost of labour and } T = \text{monthly average number of salary earners}$$

**Indicator XIV:** *The share of gross sums of money paid to salary earners in total cost of labour* represents the ratio of the gross sums of money paid to salary earners to total costs of labour.

$$P_{SB} = \frac{SB}{CH_{FS}} \times 100 \quad \text{where: } SB = \text{gross sums of money paid to salary earners and } CH_{FS} = \text{total costs of labour.}$$

Source: *The source of data is a specialized monthly survey of gross and net salary level, as well as an annual survey of the costs of labour. The monthly information is available only at a national level, while annual data is also available at regional and county level. The most important publications are "Monthly Statistical Bulletin", with a monthly impact and the "Romanian Statistical Yearbook", for annual information or final results, both published by INS.*

The *fourth* modality of statistical approach is connected to survey assessments such as ABF and ACOVI of the income and population distribution on income deciles.

**Indicator XV:** *The average total income per person* is calculated as the ratio of total monthly income (money or in kind) to the total number of persons.

$$\overline{V_T} = \frac{V_T}{P} \quad \text{where: } V_T = \text{total monthly income, } P = \text{total population.}$$

**Indicator XVI:** *The average money income per person is the money income from different sources that are not to be refund* (except for the money withdrawn from CEC or banks, loans or credits) realized in a month per total population.

$$\overline{V_B} = \frac{V_B}{P} \quad \text{where: } V_B = \text{monthly money income, } P = \text{total population.}$$

**Indicator XVII:** *The share of persons by income deciles* represents the ratio of persons from the households within an income deciles (the deciles being quantiles, a position indicator that divides the statistical population in a number of equal parts, here the tenth part of the total of households in growing order according to the size of the average total income person).

$$PP_{Di} = \frac{N_{pDi}}{P} \times 100 \quad \text{where: } N_{pDi} = \text{the number of people in the income deciles, } P = \text{total population.}$$

**Indicator XVIII:** *The monthly average counter value of consumption of own production agro-food* defines the total income (money and in kind) realized monthly per total number of persons.

$$V_{CR} = C_R \times P_M \quad \text{where: } C_R = \text{consumption of own resources and } P_M = \text{monthly average price}$$

Sources: *The most relevant data sources are the specialized ABF and ACOVI surveys whose results include total average money income, among final indicators. Quarterly data is available only at a national level, while the annual data is also available at a regional level. The most important publications are those which render the specialized ABF survey results (quarterly) and ACOVI survey results („The Living Conditions Survey” - annually).*

The *fifth* extremely important domain with varied social consequences in the medium and long term is education.

**Indicator XIX:** *The rate of working age population (15 - 65 years) that have not completed their secondary education* is calculated as the ratio of working age people (15 -65 years) that have not completed their secondary education (according to ISCED standard classification) to the total working age population (15 - 65 years)

$$PP_{\text{cycle I}} = \frac{P_{\text{cycle I}}}{P_{15-65}} \times 100 \quad \text{where: } P_{\text{cycle I}} = \text{working age population (15-65 years) that has not succeeded in completing their secondary education (except of the student that enrolled in certain form of education) and } P_{15-65} = \text{working age population (15-65 years).}$$

**Indicator XX:** *The rate of 15-24 year old population enrolled in an educational system is represented by the number of persons aged 15-24 enrolled in the institutionalized educational system per total population at the age of 15-24.*

$$P_{s(15-24)} = \frac{N_{P_s(15-24)}}{P_{15-24}} \times 100 \quad \text{where: } N_{P_s(15-24)} = \text{number of 15-24 year old pupils/ students that attend a form of education in the reference year and } P_{15-24} = \text{the population aged 15-24 on 1<sup>st</sup> July the reference year.}$$

**Indicator XXI:** *The rate of students who study a foreign language is calculated as the school population in the reference school year that studies a foreign language, reported to the school population.*

$$P_{\text{PSLS}} = \frac{N_{\text{PSLS}}}{P_{\text{S}}} \times 100$$

where:  $N_{\text{PSLS}}$  = the number of students enrolled in pre-university education (1-12 grades) that study a foreign language and  $P_{\text{S}}$  = total school population in pre-university education

**Indicator XXII:** *The average duration of schooling* represents the total number person-year-school reported to the number of persons aged 15 and over.

$$\bar{D} = \frac{N_{\text{YEARS-SCHOOL}}}{P_{15+}} \times 100$$

where:  $N_{\text{YEARS-SCHOOL}}$  = the total number person-year-school and  $P_{15+}$  = population of 15 years old and over.

**Indicator XXIII:** *The literacy level of the population* is calculated as the ratio of the people aged 15 and over, that attend or have graduated from a form of education (including those who can read and write) to the total population of 15 and over.

$$GA = \frac{P_{\text{SC}}}{P_{15+}} \times 100$$

where:  $P_{\text{SC}}$  = the number of persons aged 15 and over that attend ore have graduated from a form of education (including those who can read /write) and  $P_{15+}$  = population of 15 and over.

**Indicator XXIV:** *The gross enrollment is one of the most important synthesizing indicators* and represents the number of pupils, students enrolled in a form of education per total number of school age persons.

$$R_{\text{ENROLLMENT}}^{\text{GROSS}} = \frac{N_{\text{T}}}{P_{\text{S}}}$$

where:  $N_{\text{T}}$  = the number of pupils, students enrolled in education,  $P_{\text{S}}$  = total school population in pre-university education

**Indicator XXV:** *The number of students per member of the professorial staff* represents the number of students reported to the number of members of the professorial staff

$$N_{\text{ES/CD}} = \frac{N_{\text{TES}}}{N_{\text{CD}}}$$

where:  $N_{\text{TES}}$  = the number of students enrolled at the beginning of the schooling or university year and  $N_{\text{CD}}$  = number of teachers or professors

Sources: *The data sources are the census and biannual statistics, done at the beginning and ending of each school or university year whose results include a wide variety of specific indicators. The census or annual data is available at a national, regional and county level (there is detailed information for settlements in the annual county compendiums). The most important publications are the „Romanian Education – statistical data collection”, that appears once a year, and also „Romanian Statistical Yearbook”.*

The *sixth* domain with acute importance in the short term is regarding the working conditions.

**Indicator XXVI:** *The rate of work accidents is defined by the ratio of the number of employees that have suffered from work accidents to the total number of salary earners.*

$$R_{\text{accidents}}^{\text{work}} = \frac{N_{\text{accidents}}^{\text{work}}}{N_{\text{EMPLOYEES}}} \times 100000$$

where:  $N_{\text{accidents}}^{\text{work}}$  = number of deaths caused by work accidents and of employees that have suffered from a work accident and suffer from at least one day of temporary work disability and  $N_{\text{EMPLOYEES}}$  = total number of employees.

**Indicator XXVII:** *The average duration of work ability loss because of a work accident is defined by the number of days with temporary work disability per employee that has suffered from a work accident.*

$$\bar{D}_{\text{PCM}} = \frac{N_{\text{ITM}}}{N_{\text{AM}}}$$

where:  $N_{\text{ITM}}$  = number of calendar days of temporary inability as a result of work accidents and  $N_{\text{AM}}$  = total number of employees that have suffered from work accidents.

**Indicator XXVIII:** *the number of employees involved in strikes or labour conflicts* is defined as the aggregate number of employees who interrupted work, after any possibility of conflict resolution failed, in order to protect the professional interests with an economic or

social character or as the number of employees that interrupted work with claiming purpose or with the purpose of normalizing the work reports between the unity and its employees.

$$T_{PG} = \Sigma N_{PG} \quad \text{where: } N_{PG} = \text{number of participants to strikes or work conflicts per economic unit}$$

Considered the main requirement of the social indicator system the correct measurement of the free time activity is the *seventh* domain of social analysis.

**Indicator XXIX:** *The number of theatre and concert spectators in 1000 inhabitants represents the ratio of people who have watched shows or attended concerts to the total population of the reference year.*

$$P_{STC} = (N_{STC}/P) \times 1000 \quad \text{where: } N_{STC} = \text{number of theatre and concert spectators } P = \text{total population on 1<sup>st</sup> July, the reference year.}$$

**Indicator XXX:** *the number of cinema spectators in 1000 inhabitants represents the ratio of the number of spectators to the total population of the reference year..*

$$P_{PC} = (N_{PC}/P) \times 1000 \quad \text{where: } N_{STC} = \text{the number of cinemas spectators and } P = \text{total population on 1<sup>st</sup> July, the reference year}$$

**Indicator XXXI:** *The number of visitors to museums in 1000 inhabitants is determined as ratio of the number of persons who have visited museum to the total population.*

$$P_{VM} = (N_{VM}/P) \times 1000 \quad \text{where: } N_{VM} = \text{number of visitors to museums and } P = \text{total population on 1<sup>st</sup> July the reference year}$$

**Indicator XXXII:** *The number of readers registered at libraries in 1000 inhabitants represents the ratio of people who have used the services offered by libraries to the total population.*

$$P_{CIB} = (N_{CIB}/P) \times 1000 \quad \text{where: } N_{CIB} = \text{number of readers registered at libraries and } P = \text{total population on 1<sup>st</sup> July, the reference year.}$$

Sources: *The main annual statistical data sources whose results include a wide variety of specific indicators. The data is available at a national, regional and local level (there is detailed information in the annual county compendiums). The only annual specialized publication is "The Activity of Cultural-Artistic Units", and "Romanian Statistical Yearbook". The specific dynamics of the cultural activities is the result of the complex economic, demographic and educational development. Culture and education are in turn able to insure the economic and social progress of the population over a well delimited administrative territory.*

The *eight* domain of major interest is that of justice and personal and social security.

**Indicator XXXIII:** *Criminality rate* represents the number of definitively convicted persons per 100000 inhabitants in the reference year.

$$R_c = \frac{N_{\text{persons}}^{\text{convicted}}}{P} \times 100000 \quad \text{where: } N_{\text{persons}}^{\text{convicted}} = \text{total number of definitively convicted persons and } P = \text{population on July 1, in the reference year (average value).}$$

**Indicator XXXVI:** *The percentage definitively convicted underage persons* is calculated as the ratio of the number of definitively convicted underage people to the number of definitively convicted persons.

$$R_{cm} = \frac{N_{\text{underage persons}}^{\text{convicted}}}{N_{\text{persons}}^{\text{convicted}}} \times 100 \quad \text{where: } N_{\text{underage persons}}^{\text{convicted}} = \text{number of definitively convicted underage persons and } N_{\text{persons}}^{\text{convicted}} = \text{number of definitively convicted persons.}$$

**Indicator XXXV:** *The percentage definitively convicted women* is defined as the ratio of the definitively convicted women and the total number of definitively convicted persons.

$$R_{cf} = \frac{N_{\text{women}}^{\text{convicted}}}{N_{\text{persons}}^{\text{convicted}}} \times 100$$

where:  $N_{\text{women}}^{\text{convicted}}$  = number of definitively convicted women de and  
 $N_{\text{persons}}^{\text{convicted}}$  = number of definitively convicted persons.

**Indicator XXXVI:** Number of criminal and civil cases to be solved by a judge is calculated as the number of criminal cases that entered the court of justice per judge number.

$$N_{cp} = \frac{C_{cp}}{N_j} \times 100$$

where:  $C_{cp}$  = number of civil and criminal actions and  $N_j$  = the number of judges

The ninth interesting social domain due to its direct administrative consequences is that of is that of people participation in the political life.

**Indicator XXXVII:** The participation rate in the last national elections is the ratio of the number of participants in the last national elections to total population having the right to vote.

$$R_{PA} = \frac{N_P}{N_{TPV}} \times 100$$

where:  $N_P$  = number of participants in the last national elections and  
 $N_{TPV}$  = total number of persons with the right to vote.

The tenth social domain interesting due to its immediate effects in using the work time, and especially in the long term in the social costs is health.

**Indicator XXXVIII:** The rate of a certain class of diseases as main cause of death, in the total number of deceased persons is the ratio of the number of deaths that occurred as a result of that class of diseases and the total number of deaths.

$$P_{CBS} = \frac{NPD_{BS}}{NTD} \times 100$$

where:  $NPD_{BS}$  = number persons who died from a specific disease and  $NTD$  = total number of deceased persons over the reference period.

**Indicator XXXIX:** Infant mortality rate is calculated by dividing the number of infant deaths of under a year aged and live births over the reference period (expressed in per mille, per 1000 live births).

$$R_M = \frac{\text{Deaths}_{\text{under 1 year}}}{\text{Live births}} \times 1000$$

where:  $\text{Deaths}_{\text{under 1 year}}$  = number of deaths in the age group 0-1  
and  $\text{Live births}$  = number of live births, over the reference period

The adjusted infant mortality rate is determined when the deaths are classified simultaneously on age and year of birth by the ratio of deaths of under 1 aged in a generation to the births in the two cohorts they belong to. Further detailing can be done for the one-month children, and thus calculating the neonatal mortality which comprises part of infant mortality, i.e. only the number of deaths among children up to 28 days (the first month of life).

**Indicator XL:** Number of doctors per 1000 (or 10 000) inhabitants is the ratio of doctors to the population on 1<sup>st</sup> July, the reference year.

$$N_{M/1000 \text{ inhab}} = \frac{\text{Doctors}}{P} \times 1000$$

where:  $\text{Doctors}$  = total number of doctors and  
 $P$  = total population on 1<sup>st</sup> July, the reference year.

As far as the medical staff is concerned certain categories can be taken into account (dentists, family doctors etc.), the synthesis indicator can be considered the number of inhabitants per doctor.

**Indicator XLI:** Number of beds in sanitary units per 1000 (or 10 000) inhabitants is the ratio of the number of beds in hospitals and the population on 1<sup>st</sup> July of the reference year.

$$N_{PS/1000 \text{ inhab}} = \frac{\text{Beds in sanitary units}}{P} \times 1000$$

where:  $\text{Beds in sanitary units}$  = total number of beds in hospitals and  $P$  = total population on 1<sup>st</sup> July of the reference year



Sources: The main data sources are “Activity of Sanitary-Units”, “Romanian Statistical Yearbook” as well as the specialized “SAN” or “ACOVİ” surveys. Data is available only annually.

The *eleventh* domain is that of the social indicators’ synthesis, the most used of which being the Human Development Index (HDI).

The reports on human development elaborated annually after 1990, through the United Nations Development Programme, (UNDP) define human development as a process of enlargement, human option diversification. At the beginning of the millennium social statistics pleads for a new way of approaching human development based on the following fundamental requirements:

1. a healthier and longer life;
2. a genuine and permanent acquisition of knowledge;
3. a real access to the necessary resources for decent living, in a preset international acceptance and not determined by the economic possibilities in a certain stage in a community development.

The economic and sociological contemporary thinking for the concept of human development is extended to three directions with three distinctive features.

1. *Sustainable Human Development* synthesizes an original approach without present budget or balance of payments deficit that is to be paid by the new generations, a free expression of opinions and the use of human abilities such as to satisfy the needs of the present generation, without compromising the satisfaction of the future generation necessities. SHD generates not only economic growth, but also equitably divides its benefits. In addition to the turning to a good point of the human potential it also ensures environmental protection.
2. *Sustained Human Development* gives priority to poor population, expending its opportunities and possibilities, in order to ensure its participation in decision making in problems that affect it directly in the short, medium and long term.
3. *Sustainable and Sustained Human Development* tries to restore the trust in social and political actions, trust that requires that the interactions and the relationship between individuals and antithetical social forms be considered essential elements of social structure and social dialogue.

The first type of *human development index* was established on the basis of three essential components of human development and was registered in a report published in 1990 by UNDP. The three elements were:

1. *longevity* – measured by life expectancy at birth and synthesized by the life expectancy index;
2. *education level* – calculated as the ponderate arithmetic average of the literacy level in adult population (two thirds) and the gross rate of enrolment (one third), synthesized by three specific indices:
  - literacy level index;
  - gross enrolment index;
  - education level (calculated from the two previous indices);
3. *living standard* – the GDP per capita calculated in US dollars at buying power parity (BPP dollars) and synthesized by the GDP per capita index.

The Human Development Index (HDI) is a relative statistical value, the result of a set of regulations chosen for the maximum and minimum values characteristic of each component:

- *life expectancy* – varies between 25 and 85;

- literacy level – from 0 to 100 %;
- gross enrolment rate – from 0 to 100 %;
- income per capita – between 100 and 40000\$ S.U.A. calculated at buying power parity (BPP), the levels of GDP per capita being adjusted according to a growing logarithmic scale.

To ensure an effortless and fast understanding of the HDI index measurement method, the steps in calculating it from Romania in 2000 are shown below.

The components specific to the national human development, necessary to the measurement are:

1. life expectancy (SV) at a national level for reunited sexes and backgrounds = 70,5 ani;
2. literacy level in Romanian adult population (GAPA) = 97,0%;
3. gross enrolment rate in Romanian education (RBCI) = 66,5%;
4. GDP/capita in 2000, estimated by the method of buying power parity = 5,533\$ US taking into account the results of the buying done in 1999, under the coordination of EUROSTAT.

The actual calculation follows the steps specified below:

*Step I: Life expectancy index is calculated by the previously specified methodological limits:*

$$\frac{(SV - 25)}{85 - 25} = I^{SV} \quad \text{or} \quad \frac{(70,5 - 25)}{85 - 25} = 0,758$$

*Step II: Education index is calculated starting from the value of literacy level indices and the gross enrolment rate:*

- literacy level index calculated by the specified limits:

$$\frac{(GAPA - 0,0)}{100,0 - 0,0} = I^{GAPA} \quad \text{or} \quad \frac{(97,0 - 0,0)}{100,0 - 0,0} = 0,970$$

- estimated index of the gross enrolment rate:

$$\frac{(RBCI - 0,0)}{100,0 - 0,0} = I^{RBCI} \quad \text{or} \quad \frac{(66,5 - 0,0)}{100,0 - 0,0} = 0,665$$

$$\text{Education index } I^{NE} = (2 \times I^{GAPA} + I^{RBCI}) : 3 = \frac{2 \times 0,970 + 0,665}{3} = 0,868$$

*Step III: GDP/capita index is the logarithm of the specific value and of the specified limits:*

$$\frac{\log \text{ PIB} - \log 100}{\log 40000 - \log 100} = I^{\text{PIB / inhabitant}} \quad \text{or} \quad \frac{\log 5533 - \log 100}{\log 40000 - \log 100} = 0,670$$

or

The searched value for HDI is the simple arithmetic average of the three decisive indices:

$$IDU = \frac{I^{SV} + I^{NE} + I^{\text{PIB / LOCUITOR}}}{3} = \frac{0,758 + 0,868 + 0,670}{3} = 0,765$$

Table 1 below shows an evolution of this indicator (HDI), between 1995 and 2000, in Romania, detailing the characteristic stages:

**Table 1.** Human development index (HDI), during 1995-2000 and in 2005

Type of indices	1995	1996	1997	1998	1999	2000	2005
Life expectancy at birth (years)	69,4	69,1	69,0	69,2	69,7	70,5	71,9
Literacy level in adult population (%)	96,9	97,0	97,0	97,1	97,1	97,0	97,3
Gross enrolment ratio (%)	61,6	62,0	62,9	63,9	64,9	66,5	76,8
GDP / capita dollars BPP	6095	6595	6422	6153	5441	5533	9060
Life expectancy index	0,740	0,735	0,733	0,737	0,745	0,759	0,781
Education Index	0,851	0,853	0,856	0,860	0,864	0,868	0,904
Gross Domestic Product Index	0,686	0,699	0,695	0,688	0,667	0,670	0,752
<b>Human development index (HDI)</b>	<b>0,759</b>	<b>0,762</b>	<b>0,761</b>	<b>0,762</b>	<b>0,759</b>	<b>0,765</b>	<b>0,813</b>

Sources: *The National Report of Human Development – Romania 1995, 1997, 2001, 2002*, Bucharest, 2002 and <http://hdr.undp.org/en/statistics/>

The value of the indicator places Romania on the 60<sup>th</sup> position at European level, in 2005, HDI value being of 0,813 according to the 2007/2008 report.

The territorial analysis shows disparities of HDI within national economy, the ratio of the maximum regional HDI value and the minimal one is 112,61%., at the end of the second millennium, i.e. at the end of 1999. Territorial and spatial disparities have increased yearly.

**Table 2.** Human development index (HDI), in 2000, at a national and regional level

Statistical Region	GDP/capita (dollars BPP)	Life expectancy (years)	Literacy level (%)	Gross enrolment ratio (%)	Human development index (HDI)
ROMANIA	5441	69,7	97,1	64,9	0,759
Region 1 North-East	3891	70,1	97,0	61,5	0,738
Region 2 South-East	5299	69,6	97,0	60,8	0,752
Region 3 South	4717	69,6	95,2	59,8	0,740
Region 4 South-West	4957	69,6	95,7	63,6	0,748
Region 5 West	5621	69,2	97,8	68,8	0,763
Region 6 North-West	4750	68,7	97,3	65,7	0,747
Region 7 Centre	5497	70,1	98,5	62,9	0,762
Region 8 Bucharest	10452	71,5	98,9	84,7	0,831

Source: *National report of human development Romania 2001 – 2002*, Bucharest 2002, pp.119

## A Final Remark

In conclusion, such a synthesis indicator as HDI best defines the social implications of the Romanian economic transition. The relatively slow economic performance, which alternates ascending and descending evolutions, slowed down human development, and the slow progress of human development dynamic, in its turn, did not favour economic development

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4. <http://hdr.undp.org/en/statistics/>

## Un sistem potențial statistic românesc de indicatori sociali utili

### Rezumat

*Armonizarea indicatorilor sociali naționali constituie un proces dinamic care a ținut seama atât de Sistemul european de indicatori sociali (EUSI), cât și de Sistemele de indicatori sociali ONU. Pentru a simplifica prezentarea indicatorilor sociali, acest articol apelează firesc la o grupare pe domenii a acestora, urmată de prezentarea principalelor modalități de calcul, cu mențiuni ale principalelor surse de date disponibile în economia națională.*