

INNOVATIVE PERSPECTIVES OF A HEALTHY ECONOMY IN EUROPE

Mariana BALAN

“Athenaeum” University-Bucharest,
Institute for Economic Forecasting, Romanian Academy,
dr.mariana.balan@gmail.com

Oana Camelia IACOB

Ph. D. Student, Valahia University, Targoviste, Romania, ioanabaghi@yahoo.com

Ana-Maria VOLINTIRU

Ph. D. Student, Valahia University, Targoviste, Romania, anavolintiru@gmail.com

Aurel MARIN

Ph. D. Student, Valahia University, Targoviste, Romania,
aurel.marin@yahoo.com

Abstract

Against the background of a double crisis - the short-term economic and long-term demographic crisis - European states adjust to reality embracing the various components of the welfare state, of which the health care system and the retirement system are the first. This article aims to draw attention to an immediately noticeable problem of the health system in Romania, underfunding.

Health, as well as defense or education, represents one of the basic sectors for life itself, in any society. Importance of health in the economy is justified by the indispensability of services they produce, the amount of used resources, the number of people it serves and numerous connections to other fields. The basis of this article assumes that economic growth is a key factor for long-term health, especially in developing economies. The analysis focused on key indicators of health system in Romania, showing the high efficiency of different attempts to apply innovation in health care and national willingness to adopt change.

Alignment with European Directives and the quality of the health system in other countries has spurred the phenomenon of change in the Romanian economy thereby causing an urgent need to introduce the idea of having quality healthcare services.

Keywords: economic growth, indispensable services, high efficiency, healthy economy.

JEL Codes: P36, H75, I15.

1. Introduction

In the second half of the 20th century, public spending of health services grew at a rapid pace, reflecting the will of the governments to support the higher and higher level of population health. In this context, there has been development and diversification of economic approaches to health, *health economics*, becoming an applied component of economics. A characteristic of this area is specially reflected by the unitary approach, bringing together both microeconomic and macroeconomic issues, ensuring the subtle transfer from doctor-patient relationship to the relationship between healthy and economic growth. In addition, the interdisciplinary perspective: economy, medicine, and psychology and sociology offer the challenging framework of understanding human behavior and also offers its useful perspectives of health policy, as well as health services research.

Relation between health and economic context is known for many years. Rich nations generally have better health conditions than poor nations and wealthier individuals within a country have, on average, better health status than the poor. Also, fewer individuals with poor health enter the labor market, work less, and earn a lower salary, with direct consequences for them, their families, and their business.¹

More broadly, the relationship between health and macroeconomic performance translates as: health is the engine of the economy. This concept shows that a healthy population leads to economic growth. The World Health Organization has supported the concept of encouraging international investment in the promotion of health services in developing countries as a means for economic growth.

The idea that greater wealth enables people to make better choices concerning health has been accepted for a long time, but the opposite is really true? Is better health leading to wealth, both individually and nationwide?

Studies of the International Health in the EU Region show that an increase in life expectancy matches perfectly the increase in economic performances of the countries. In the eastern region, the relationship is even more clear: between 1990-2003, countries that have suffered a decline in life expectancy, have suffered a decline in welfare of 16 to 31%, while those who had an increase in life expectancy have registered benefits 12-31% of GDP.

A German study of the years 1995-2005, found that an increase of 10% of health services satisfaction, to enhance women's hourly wages by about 0.14-0.47% and men by about 0.09-0.88%. A 2006 study of rich

¹ Popescu C., Burghilea C., (2010). *The Health of the Economy as a Living Organism*, Theoretical and Applied Economics, București, Volume XVII, No. 2(543), pp. 79-88

countries covering the period 1960-2000, found that a 10% reduction in mortality from cardiovascular disease was associated with a rate of growth of income per capita.

2. Methodology for studying the presence of innovation in health

Economic growth is a major determinant of long-term health, particularly in developing economies. Higher income facilitates access to healthcare, education, nutrition and housing, and these contribute to a better health status. This relationship is stronger in emerging market economies, where an increase in income will have a greater impact on health than in developed countries. The relationship also works in the opposite direction, a state of better health in the long term contribute to an increased level of income, through labor force participation and productivity.

Analyzed through its main indicators, the health system in Romania has been increasing its efficiency during the last 40 years. Life expectancy at birth increased and maternal and infantile mortality have decreased. However, even if the health system indicators showed an upward trend in the last years, we have to consider the health status in Romania is one of the worst in the European Union (eg both infantile and maternal mortality indicators are among the first among EU countries).

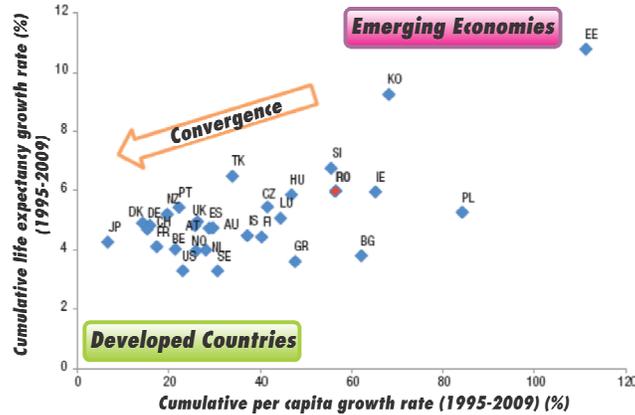
Table 1. Main health status indicators in Romania, 1970-2009

Indicatori	1970	1980	1990	2000	2009
Life expectancy at birth for women	70	72	73	75	77
Life expectancy at birth for men	66	67	67	68	70
Standardised Death Rate (SDR) for all causes and ages	1236	1284	1169	1098	733
Infantile Death Rate (per 1,000 live births)	49	29	27	19	10
Maternal Death Rate (per 100,000 live births)	116	132	83	33	27
Fertility rate (per woman)	-	-	1.9	1.3	1.3

Source: www.who.int, 2010

Romanian economy experienced a rapid convergence process, which was supported by foreign capital inflows - particularly since 2005 when the capital account was liberalized (see Figure 1). In this period, real GDP per capita grew at a cumulative rate of 56% and at the same time life expectancy in Romania grew by 6% or 4.16 years.

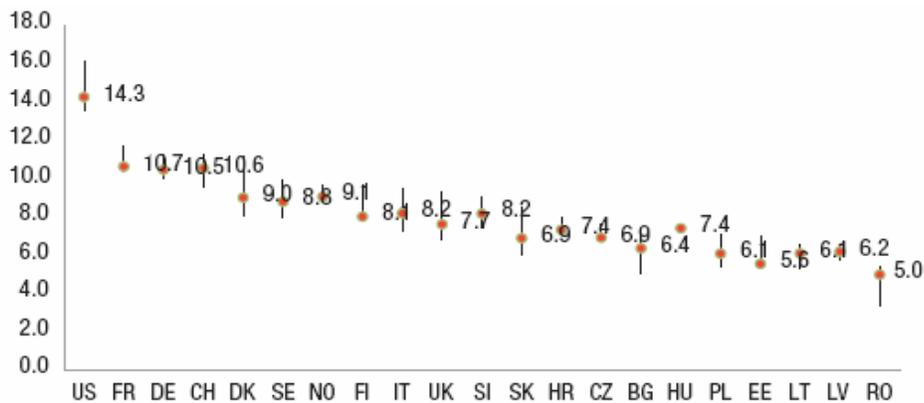
Figure 1. Economic growth and life expectancy



Source: www.who.int, 2010

Despite these developments, the present health status of the population in Romania remains one of the weakest in Europe. One reason for this result was the lack of public initiative in the past decade to take the necessary measures to reform the health sector. As in other CEE countries (Poland, Slovakia, Slovenia, Estonia) healthcare resources as a percentage of GDP increased in recent years, indicating that public authorities have considered the health sector as a priority for long-term growth, in Romania total expenditure on health (resulting both from the private sector and the public) as a percentage of GDP has remained relatively constant since 2000 at about 5.4% of GDP (see figure 2).

Figure 2. Evolution of total health expenditures (% GDP), 1995 - 2009

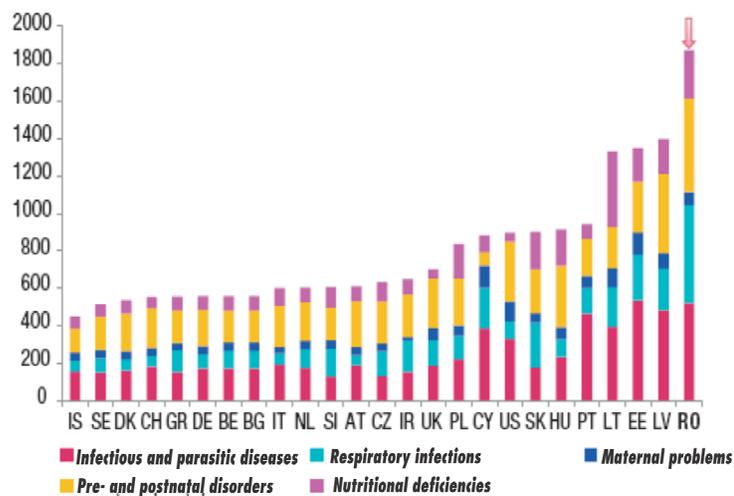


Source: www.who.int, 2010

But one of the main disadvantages of the indicator life expectancy is its inability to quantify quality of life, burden of disease, injury. The DALY indicator (Disability-Adjusted Life Year) developed by the World Health Organization, provides a measure of years of healthy life lost due to poor health. One DALY can be thought of as one lost "healthy" year of life. In fact DALY measures the gap between current health status of the population and an ideal situation where the entire population lives to an advanced age without illness or disability. In 2004, Romania had one of the highest DALYs per 100 thousand people of the CEE countries, with 15,651 DALYs. At the same time, the average was 14,586 DALY ECE while the average for developed countries was significantly lower at 10.387 DALYs. In the structure, the main factor for DALYs are non-communicable diseases accounting for over 80% of life years lost in developed economies and between 70% -80% in emerging economies. In Romania noncommunicable diseases accounted for 76% of total DALYs.

Romania recorded an unusually high DALY due to communicable diseases, maternal, perinatal and nutritional, 12% of total DALY, placing it in the last position in the EU (see Figure 3).

Figure 3. DALY due to communicable, maternal, perinatal and nutritional diseases, 2009



For comparison, the average in developed countries was only 6%, while those of CEE averaged 7%. The burden of these diseases on the

population can be relieved in the short and medium appropriate policies and effective prevention and treatment, with a success rate higher than for non-communicable diseases because most diseases can be effectively treated today. Thus, in this context, it is questionable why the authorities have not taken effective action to date to control communicable diseases at a level comparable to that in other CEE countries. Tuberculosis and respiratory infections are the main causes of DALYs due to communicable diseases, maternal, perinatal and nutritional in Romania, accounting for 39% of all years of life lost. Perinatal conditions such as prematurity or neonatal infections also have a high incidence compared to other countries around us.

DALY can be converted into the equivalent of economic output lost in the medium and long term. The economic value of a DALY can be approximated by GDP per capita. In other words, one year of working life lost in a cycle of life by an individual can be considered equivalent to one lost year of participation in economic activity, with all the implications that derive from this (to reduce output, income, taxes, consumption, etc.).

To estimate the present value of economic output lost (OL) in the medium and long term due to the total DALY, we need population projection over the average remaining life cycle - P_0 population in the base year, and p - increasing long-term population, GDP per capita in the base year, the growth rate in the medium and long term GDP per capita (g) required rate of return in the economy (r) and fraction the total Daly is lost in a given year (k) of all the remaining years of life cycle (n). Transposing in mathematical terms, the relationship is:

$$OL = DALY \cdot \sum_{k=1}^n \frac{P_o \cdot (1+p)^k \cdot GDP/capita_o \cdot (1+g)^k \cdot \gamma_k}{(1+r)^k} \quad (1)$$

where: $\sum_{k=1}^n \gamma_k = 1$

If for simplicity we assume that the growth rate of GDP per capita is equal to the required rate of return in the economy and the total burden of disease (DALYs) is equally spread over the remaining life cycle ($\gamma_k = 1/n$), the above formula reduces to:

$$OL = DALY \cdot P_o \cdot GDP/capita_o \cdot \frac{1}{n} \sum_{k=1}^n (1+p)^k \quad (2)$$

Given the current disease burden on the population as measured by DALYs, the Romanian economy loses about 18.6 billion euros (15% of GDP) in economic output in the medium and long term production

compared to the situation in which the entire population would have an ideal health condition (DALY = 0). However, a more realistic exercise is to evaluate the surplus in economic output, which would be determined by an improvement in the health of the population at a level similar to that of the EU average (see table 2). So, assuming DALY (100 thousand inhabitants) in Romania would converge from 15,651 years to the EU average, which is about 10,000 years, will determine, *ceteris paribus*, an increase in economic output of 6.7 billion euros (6% of GDP).

Table 2. *Estimarea producției economice pierdute datorită DALY în România*

Variable	Estimated value
Life expectancy (2009)	74
Average age of the population (2010)	39
Remaining years to live (Life expectancy - Average age of the population)	35
Population (2010)	21.462.186
long-term growth rate of the population (%)	-0.3
GDP per capita (EUR) (2010)	5.700
DALY, per 100.000 population (2004)	15.651
Fraction of DALY lost in a year	0.03
Current value of lost economic potential (2010) (EUR)	18.620.949.722
Current value of lost economic potential (2010) (% 2010 GDP)	15%

Source: www.insse.ro

The question that naturally arises now is what can public authorities do in order to reduce DALY and capitalize additional economic output that would result from improving the health of the population. Both the quality and quantity of public expenditure on health matters in order to achieve an improvement in the health of the population. Countries that spend on average more on long-term care have better outcomes than those with lower health expenditures. The relationship is more evident in the case of developing countries that have underdeveloped healthcare systems and where a marginal increase in health care costs can make a big difference in the health of the population over time. The quality and cost effectiveness of health is also an important factor in determining the state of health. Some countries spend the same amount of money on health, but the results in terms of health are different. Although there are a variety of factors explaining this difference, we believe that the efficiency of health spending is among the most important factors for developing countries.

3. Public health solutions in Romania

Public expenditures on health in Romania are financed from the following categories of income: (1) National Health Fund (FNUASS) - the main source of revenue consists of contributions from employers and employees, (2) Ministry of Health (MS) - the main categories of income are their vice tax and turnover tax, (3) budget - FNUASS deficits are covered by allocations from the state budget by transfers from the Ministry of Health.

Revenues from the public health sector have increased between 2005-2008 with a nominal annual rate of 23%, with a slightly more alert dynamics compared to that of the total government revenue of 21%. In 2008, most public health revenues were generated by employee contributions (45%) and employers (44%). In 2006-2008, the rate of employer contributions decreased faster compared to that expected from employees, which led to a reduction in the share of total income FNUASS employee contribution (see table. 3).

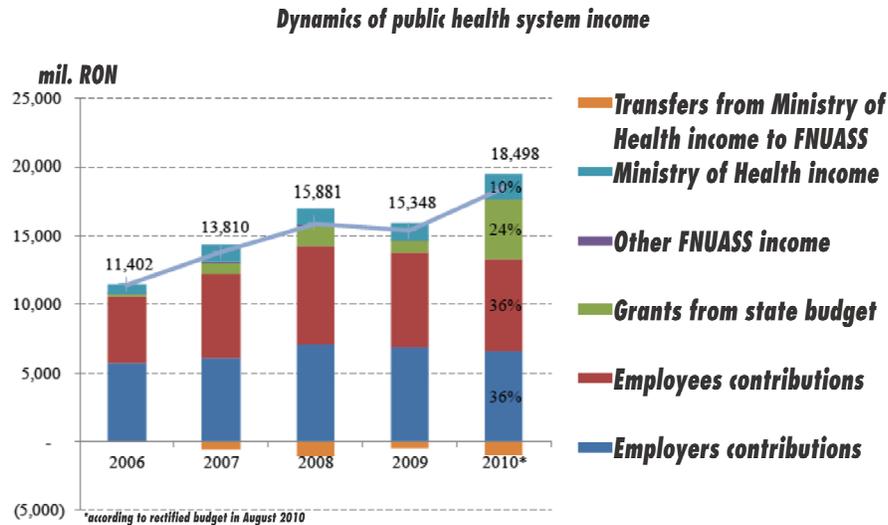
Table 3. *Evolution of FNUASS contribution rates (%)*

Contribution rates	2006	2007	2008	2009	2010
Employers	7.0	6.0	5.5	5.2	5.2
Employees	6.5	6.5	5.5	5.5	5.5
Total	13.5	12.5	11.0	10.7	10.7

Source: www.cnas.ro

Amid the economic crisis began - there has been recorded a decrease in financial public health revenue by 3.4%. Following the economic contraction, contributions also decrease, provided that the financing needs of the health sector has been growing, with the elimination of ceilings on compensated drugs. As a result, this has caused an increase in the CNAS debt payment terms to suppliers of medicines and accumulation of arrears.

Exceptionally significant sums were directly allocated in 2010 from the state budget through the Ministry of Health to FNUASS due to settlement and resolving outstanding financial blockage created in the private health sector as a result of accumulation of arrears (in 2009). The subsidies from the state budget accounted for 24% of total public sector health resources in 2010 (see figure 4).

Figure 4. Dynamics of public health system income

Source: www.mfinante.ro

Law 95/2006 on health sector reform provides for a tax on turnover (clawback tax) of companies holding marketing authorizations of medicinal products in Romania since 2010 for specific drugs included in national health programs, for drugs administered to ambulatory insured patients and insured patients receiving medication in hospital treatment. By law, the clawback tax revenues are revenues of the Ministry of Health. According to the law, the tax applies differently depending on sales volume, on quarterly earnings of drug manufacturers - who have marketing authorization - or companies marketing drugs which have secured marketing rights for. However, the application of this tax is not fully justified for the total sales volume of compensated drugs, as time of collection of receivables on FNUASS is very long (over 180 days). Therefore, it is right that the basis for the clawback fee to be formed of the amount of settlements made by CNAS due to drug marketing.

It would therefore make more sense clawback duty on the value settled by FNUASS because it would be more closely correlated with drug producers' cash flows. According to data from CNAS, the compensated drug value settled by FNUASS declined in 2009, although sales of compensated medicines rose. Decreased revenues from the public health sector, as a consequence of the economic crisis and increased spending led to FNUASS

inability to honor its debts to the private sector - for compensated medicines - and accumulation of arrears. In such a framework, the application of clawback tax on turnover of producers would put even more pressure on their financial position in terms of liquidity problems existing in the system and long periods of FNUASS receivable.

Another visible problem in the health sector is arrears. Solving it is to reduce or eliminate the structural gap between expenditures and revenues of the public health sector through a series of measures such as cost control and increased efficiency, improving the collection and broaden the tax base. A solution can not be achieved in sustainable subsidies from the state budget. Moreover, the fiscal strategy - medium-term budget foresees a reduction in transfers from the state budget to the Ministry of Health to a maximum of 0.86% of GDP in 2010 to 0.32% of GDP in 2013, or 0.21% of GDP in 2014 amid public health reforms (see table 4).

Table 4. Ministry of Health expenditure budget for the period 2009-2014

	Revenues 2009	Revenues 2010	Revenues 2011	Revenues 2012	Estimated 2013	Estimated 2014
Transfers % din GDP	0.28	0.86	0.25	0.26	0.32	0.21

Source: www.mfinante.ro

Regarding social security, budget incomes in 2009 was 9.6% of GDP, much lower than in the Czech Republic (15.4% of GDP), although statutory contribution rates were relatively similar, Estonia (13.1% of GDP) and Poland (11.3% of GDP) where statutory social contributions rates were significantly lower than in Romania (see table 5). In addition, we can observe a trend of CAS efficiency index reduction.

Table 5.

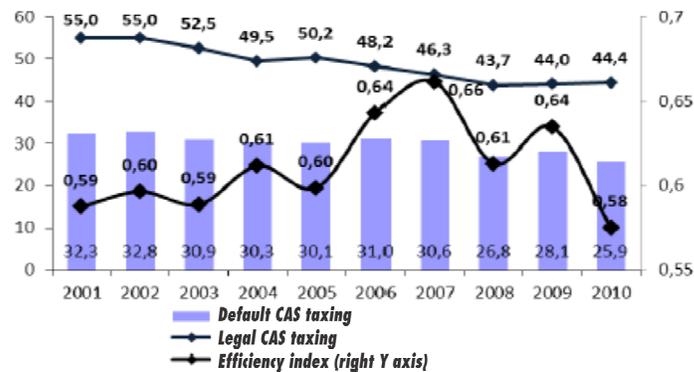
Country	Legal contribution rate (%)		Default taxing rate		Taxing efficiency index		Ranking 2009
	2009	2010	2009	2010	2009	2010	
Bulgaria	30.9	28.9	24.3		0.79		7
Czech Republic	46.3	45.3	44.9		0.97		1
Estonia	35.6	37.2	34.1		0.96		2
Latvia	33.1	33.1	21.3		0.65		9
Lithuania	40.0	40.1	33.7		0.84		6
Hungary	49.0	48.5	36.4		0.74		8
Poland	37.4	37.4	35.4		0.95		3
Romania	44.0	44.4	28.1	25.9	0.64	0.58	10
Slovenia	38.2	38.2	32.8		0.86		5
Slovakia	48.6	48.6	41.9		0.86		4

Source: ec.europa.eu/eurostat

Moreover, among the countries of Central and Eastern Europe, in 2009 Romania ranks last in terms of social security collection efficiency, although it had one of the largest legal contribution rate. (fourth position after Slovakia, Hungary and Czech Republic. However, in terms of social contributions payable by the employer, Romania ranks sixth among the countries analyzed.)

If social contributions with a degree of efficiency of 64% and a default taxing rate of 28.1% in year 2009, Romania is the last in the group of Eastern European states. In 2010, the collection of social contributions got worse, implicit tax rate decreasing to 25.9%. The current situation indicates on the one hand reduced ability of the authorities to assess and forecast the evolution of the tax base and on the other financial deterioration and increased taxpayer undeclared work (see Figure 5).

Figure 5. Evolution of the default tax rate and index of collection efficiency for CAS in Romania



Source: www.consiliulfiscal.ro

The low collection of employees and employers contributions that led in time to the accumulation of significant delayed receivables, FNUASS recorded a balance of outstanding claims in 2009 about 5 billion RON. More than half of these debts are recorded by ten companies, mostly national, which in recent years have losses from operations. The prospect of recovery of these debts is minimal in the sense that during the restructuring process that these companies are going to follow it is likely that some of these debts are erased.

4. Recommendations

Health insurance system needs reform on both the revenue and the expenditure side. Thus, the main objective is to provide quality and

comprehensive medical services, increasing revenue for health and expenditure rationalization.

In September 2010, the debt exceeded 4 billion RON, of which nearly half was late. Development and approval of a payment plan are urgently needed to pay outstanding receivables. Reducing the basic package of health services provided to policyholders, eliminating the costly inessential and distinctive indication of the uninsured services, for which private insurance can be purchased. It is also necessary to allow tax exemptions to pay private insurance.

Applying indicative limits for the values of prescriptions prescribed by general practitioners and specialists. With SIUI, county insurance houses should monitor and advise physicians that exceed these limits. Sanctions or penalties will be granted only to doctors who exceed the limits unduly. Avoiding fraud in the system - possible while lacking a control mechanism - with the introduction of electronic prescriptions and electronic health card.

National tendering for medicines and sanitary materials in national health programs - can make it possible to save the cost of goods auctioned.

Higher allocations for outpatient services as cheaper alternative to hospital care - additions should be directed to settle the medical services provided, not the number of policyholders. Subsidizing loans or providing co-financing for the purchase of equipment. The value of the service and insured points should be established to ensure the multiannual predictability. Increasing the share of the service charge for family physicians to the detriment of the number of insured persons. Linking prices established by service contracts with service quality. There are various indicators that can measure the quality of services - frequency of readmissions for patients discharged from the same hospital for the same condition, the development of post - treatment, etc.. Those hospitals that do not meet national scales regarding the quality or health will not permit contracting services at a reduced rate compared to the standard. Accreditation of hospitals - closing of inadequate hospitals or converting them into social assistance units. Reducing personnel costs of hospitals (total amounts reimbursed by CNAS and MS) to provide funds for the purchase of medicines.

Review of tariffs, so that a DRG system would be linked to the actual costs of services and payments, to reduce differences between hospitals for similar services provided. Implementation of a national health portal where data can be published on public health and health providers, contractors and their homes, and where patients can submit complaints. Also, financial statements, including debts and outstanding payments, settlement situation, indicating the sums not settled on time. Also, the publication of data on accreditation, authorization and audit reports / analysis for each service provider. Standardization of medical practices

through therapeutic practice guidelines, hospital protocols and transfer, etc.. Application of budget constraints for providers: hospitals managers recording arrears to receive wage penalties, decreasing the settled charges for medical services provided by hospitals contract values systematically exceeding top limits. Business Environment Advisory Council, CCMA would catalyze, without waiting for orders from the central level, project specific local public-private partnerships and even find solutions to their financing from European funds, all locally. It may finally provide a performance management solution for hospitals. Imagine the progress that could bring in a health institution an advisory board formed to advise businessmen such as planning, prioritization and standardization of procurement.

5. Conclusions

Romania is the European Union member state that allocates the fewer funds of gross domestic product to health. The problem has become one of tradition, since 1989 all governments facing the same problem - the gap between health spending and the real needs of the population. Permanent gap widened as drug multinationals have made their presence felt in Romania, marketing and investment assuming specific medical information on current opportunities indirect population of diagnosis and treatment. Therefore, a strong pressure to increase health spending is permanently present, but a growth that no government has assumed other than strictly declarative. The health system has tried to keep up with the existing western countries by funding priority clinical hospitals and universities, and recently made investments in emergency healthcare.

In this context, liberalization of the health sector is absolutely necessary through liberalization of wages and salaries based on differentiated criteria and clarifying and assuming responsibilities that each institution carries (Ministry of Health, CNAS, county insurance houses). Also, it is absolutely necessary to prevent theft, inefficiencies and inequities in the system by increasing transparency in the medical services provided in real time, and punishments for the hospitals which do not meet the required standards.

Romania needs to shift to a new kind of health policy towards individual and community responsibility and especially health care costs. With the redefinition of basic service package and the introduction of patient co-payment, is stimulated control over the free services and over transparency of costs for the services and medicines made in the name of, and which it must pay or which has private health insurance.

Bibliography

1. Abel-Smith, B., (1963), *Paying for Health Services: A Study of the Costs and Sources of Finance in Six Countries*. Public health papers no. 17. Geneva: World Health Organization.
2. Acemoglu, D., S. Johnson, (2007), *Disease and Development: The Effect of Life Expectancy on Economic Growth*, Journal of Political Economy, vol.115(6), pp.925—85.
3. Aghion, Ph., Howitt, P., Murin, F., (2010), *The Relationship between Health and Growth: When Lucas Meets Nelson-Phelps*, Bruegel Working Paper, Aprilie 2010.
4. Baldacci, E., (2008), *Social Spending, Human Capital, and Growth in Developing Countries*, World Development, Vol. 36, pp. 1317–41.
5. Cottarelli, C., (2010), *Macro-Fiscal Implications of Health Care Reform in Advanced and Emerging Economies*, Fondul Monetar Internațional, 28 Decembrie 2010.
6. Gupta, I., Trivedi, M., (2008), *Health Insurance: Beyond a Piecemeal Approach*. Economic and Political Weekly 40, pp. 2525-2528.
7. Hammer, Jh., (2001), *Kenneth Arrow and the Changing Economics of Health Care: Why Arrow? Why Now?*, Journal of Health Politics, Policy and Law, Vol. 26, No. 5, Octombrie 2001, pp. 835-849.
8. Howitt, P., (2005), *Health, Human Capital, and Economic Growth: A Schumpeterian Perspective*, Health and Economic Growth: Findings and Policy Implications, Cambridge, MA: MIT Press, 2005, pp. 19-40.
9. Miguel, E., Kremer, M., (2004), *Identifying Impacts on Education and Health in the Presence of Treatment Externalities*, Econometrica, Vol. 72, No. 1, pp 159-217.
10. Oxley, H., MacFarlan, M., (1995), *Health Care Reform: Controlling Spending and Increasing Efficiency*, OECD Economic Studies, No.24, Paris
11. Popescu C., Burghilea C., (2010), *The Health of the Economy as a Living Organism*, Theoretical and Applied Economics, București, Volume XVII, No. 2(543), pp. 79-88.
12. Rothschild, M., J.E. Stiglitz, (1976), *Equilibrium in competitive insurance markets: an essay on the economics of imperfect information*, Quarterly Journal of Economics, pp. 630-649.
13. Societatea Academică din România, (2010), *Criză și reformă în sistemul de sănătate. O radiografie la zi*, București, Decembrie 2010.
14. Weil, D. (2007). *Accounting for The Effect of Health on Economic Growth*, Quarterly Journal of Economics, vol.122 (3), pp.1265-1306.