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DOCTORAL SCHOOL OF ADMINISTRATION AND PUBLIC
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DOCTORAL THESIS SUMMARY

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PhD Candidate

SUCIU (PINTEA) ALEXANDRA

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**FACULTY OF POLITICAL, ADMINISTRATIVE AND
COMMUNICATION SCIENCES**

DOCTORAL SCHOOL OF
ADMINISTRATION AND PUBLIC
POLICIES

EUROPEAN FRAMEWORK OF HEALTH FINANCING AND THE EFFICIENCY OF ALTERNATIVE FINANCING

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Contents

Introduction	2
Chapter 1: Framework, objectives and components of health financing	3
1.1. Health finance policy objectives	4
1.2. The framework for organizing health financing systems	5
1.3. Fiscal constraints and contextual factors	6
1.4. Fragmentation and alignment - correlation with objectives	7
1.5. Diagnosis of health financing at national level	7
1.6. Copayment	9
1.7. Voluntary health insurance	10
Chapter 2. National health systems in European countries	11
2.1. Health systems of Western European countries	11
2.2. Health systems of northern European countries	13
2.3. Health systems of southern European countries	14
2.4. Health care statistics in European countries	15
Conclusions of the chapter	18
Chapter 3. The Romanian health care financing system	18
3.1. Objectives and structure of the Romanian health care system	19
3.2. Methods of financing the medical system in Romania	20
3.3. Medical services provided	21
3.4. Substantiation of budget expenditures	23
Conclusions of the chapter	24
Chapter 4. Health support through voluntary health insurance and collateral financing	24
4.1. Efficiency and equity of health financing	24
4.2. Determinants of the development of voluntary health insurance in European countries	25
4.3. The effect of total funding and voluntary health insurance on public health	28
Conclusions of the chapter	32
Final conclusions	33
References	35

Introduction

Thesis topic

Health is the most important thing for both man and society, is the condition of participation in social and political life because health is not only a good of an individual but is an important economic resource of the country. The way in which governments are concerned about the health of the people is found in the social health insurance system. The comparison of the health system in our country with the medical systems in other countries contributes both to the understanding of the influencing factors between the economic and social plan and to the identification of the financing sources that can be approached in order to adopt and implement new medical programs as large as possible in the population. The analysis of the process of reforming and financing the medical system is a topic of major importance both for the objective diagnosis of the national medical system by comparison with the medical systems of other countries and the identification of new financing possibilities.

Main objective

The main objective of this thesis is to better understand the global issue of health financing by correlating economic theory with the comparative situation of European countries' systems and to test the effectiveness of financing alternatives on the health and longevity of the population. The thesis will focus on three major issues:

1. The theoretical aspects on which the construction of a robust and efficient health financing system must be based.
2. Identify possible systems for financing by critically comparing European national systems.
3. The study of the effects of some financing alternatives on health and longevity.

Thesis structure

Chapter 1. Framework, objectives and components of health financing. The problem of health financing objectives is addressed first. These come from economic and medical theory and from the practical experience of health systems.

Chapter 2. National health systems in European countries. Emphasis is placed on the reality observed at national levels. Health systems in European countries are compared. The geographical distribution and the correlations between some aggregated indicators at national level are analyzed: financing, trends, human resources, etc.

Chapter 3. The Romanian health financing system. For a more detailed analysis, a national system was detailed, the Romanian one. The following are observed: the objectives of the financing system, the structure of the medical system, the financing methods, the services provided, the legal framework and the calculation of the budgetary expenditures.

Chapter 4. Health support through voluntary private insurance and collateral financing. The determinants of the development of voluntary private health insurance in European countries are identified. The causalities between the general level of financing of the health system, the development of private health insurance, the decentralization of medical services, life expectancy and accessibility to medical services and the effects of sports financing on health are also demonstrated.

Final conclusions. They include an overview of the thesis, with a clear specification of the original elements of the paper, study recommendations of the national health markets and possible directions for theoretical development of the field.

Chapter 1. Framework, objectives and components of health financing

The increased demand for health funding and the extent to which it can be achieved must be taken into account when reforming the system. In Europe, the typology of national health systems has ancient origins, even of a cultural nature. Thus, the attempt to reform through public consultations and debates leads to minor changes rather than a profound reform of the system. For the initiation of systemic reforms, countries can count on the support of WHO, which provides a fairly flexible technical framework for analysis, allowing for case-by-case adaptations. They first

define a common set of objectives that are universally valid at any national level and come from the core values supported by the WHO. The objectives outline the trend that should be followed by the proposed reforms. A comprehensive analysis framework on the organization and functioning of national systems and the relationships between its components is then established. The analysis then refers to how the most important determinants, especially those related to funding constraints, reduce the extent to which a country can achieve its goals.

1.1. Health financing policy objectives

The objectives to be defined are considered criteria against which the performance of health financing systems and the effects of reforms will be analyzed. A simple definition of financial health risk says that people should not become poor as a result of using healthcare, nor should they be forced to choose between their health and economic well-being.

The objective of a fairly funded health system can be treated separately. Given the financial availability, the poor should not pay relatively more than the rich. The objective of equity in funding is therefore largely defined by the core value of solidarity.

The objective of fair use of health services requires some definition and interpretation. The care services and resources available should be prioritized according to the needs of each individual and not in relation to the financial possibilities of the person. This objective is therefore related to use, not to the collection of available resources. Equity of use results in a balance between the distribution of expenditure and the provision of services.

Another objective is to increase the transparency and accountability of the medical system in relation to patients and the general population. It is even more difficult to quantify and interpret. It is not without interest to see what are the limits of this concept, to allow its use as a practical criterion for evaluating a financing system or to be used in defining and implementing reforms.

The objective of responsibility is also important, and it can be approached qualitatively, not quantitatively. The scope of this problem varies from tracking and reporting financial resources, to reporting performance against some agreed-upon measures, to improving government legitimacy in the eyes of citizens. Funding arrangements may be used to encourage and reward good quality services and to stimulate the efficiency of the organization and delivery of services. For the method to

be used successfully, incentives need to be linked to the rules on service providers and their competencies in managing the system.

In some countries a key focus of efficiency-oriented reforms has been the reduction of the physical infrastructure of health systems due to the high fixed costs associated with their maintenance. A precise indicator of efficiency is the ratio between fixed costs (public utilities, staff) and treatment costs (medicines and medical supplies).

Administrative efficiency is mainly concerned with avoiding overlapping functional tasks and responsibilities for the administration of the financing system. The desired direction should be to maximize the cost-effectiveness of administrative functions.

1.2. The framework for organizing health financing systems

Often, health financing systems are classified into models or labels: Beveridge, Bismarck, Semashko, etc. In emerging European countries, belonging to a model also wants to suggest the reform made, wanting to send signals of change compared to the period when it was managed very authoritatively and centrally. However, the labeling is not sufficient to accurately describe existing systems or to assess possible reforms. The model mainly indicates the source of funds. One can distinguish between revenues from non-dedicated general budgets versus revenues from the general taxation of the population's income. To describe the different funding systems and reforms must take into account: revenue collection, pooling, procurement and policy on benefits and patient cost sharing and explain the interactions between them, how they relate to the provision of services, how it relates to the population and, in addition, their relationship with "funding management".

In order to understand the overall functioning of the system, it is necessary to evaluate (1) the degree of monopolization or competition regarding the implementation of a function and (2) the way of separation or integration of functions. The issue of the relationship between the level of contribution and the right to benefits also arises. In the case of some countries there are such correlations, ie the contributions of individuals give the right to medical care in the name of the contribution. Sharing funds has the broader meaning of raising revenue previously paid by members of a community. Funds for the provision of medical services are collected by a multitude of private or public institutions.

There are therefore possible changes in the ways in which funding is accumulated. They may affect (1) how to protect the population against major financial risk when using medical services; (2) fair distribution of health care resources; (3) efficiency of service organization and administrative efficiency. Objectives and measures related to patients' benefit and co-interest through cost-sharing, using co-payments, informal payments or private voluntary insurance require a direct relationship between the funding system and the beneficiary population.

The administration of the financing system is important both as an institutional and functional design, as well as regarding the effective implementation. This is closely linked to the general framework for the functioning of the financing system and its support in a hierarchical way to ensure its optimal functionality.

1.3. Fiscal constraints and contextual factors

Countries may share the core values and general objectives of health systems but there are factors that come from outside the health system and limit the extent to which different countries can achieve these goals and values in practice. The fiscal framework is the main economic and contextual issue for health financing. We are talking here mainly about how national state authorities manage to engage in income taxes and other public sources of funding, while keeping the budget and total expenditure of all destinations in balance. Empirical experience shows that systems mainly financed from non-dedicated public funds are better able to achieve certain objectives of financial protection, equity in funding and equity in use. A good measure of the fiscal context is the ratio between public revenues and GDP. Tax collection is usually more difficult in poorer countries, as more people tend to live in rural areas or work in the informal economy.

In setting health budgets, governments cannot allocate indefinite amounts because they have to fall within the general budget. The economic sustainability of a budget must take into account the balance between revenue and expenditure, which is also true when it comes to amounts for health. Sustainability is not an objective in itself that must be achieved, but rather a requirement that comes from economic principles.

The analysis of data on health expenditure in Europe illustrates the strong inverse relationship between (1) government health expenditure as a percentage of GDP and (2) the share of total health expenditure in the form of out-of-pocket

payments. Consequently, the higher the public amounts allocated to health care, the lower the number of people who pay directly for their services. This has consequences for the proposed objectives of funding equity, fair use of care services and financial protection. Other important contextual factors are demographic variables and the administrative framework.

As a result, the choice of the optimal system is under the constraints of contextual factors that are able to significantly influence the possibilities for implementing reforms.

1.4. Fragmentation and alignment - correlation with objectives

Fragmentation of health financing mechanisms is problematic in many respects. As a consequence, an important political concern in many countries is to reduce or eliminate fragmentation. The objectives of financial protection and access to care are best served by risk pooling agreements that maximize the potential for cross-subsidization from the healthy to the sick. It is shown that the larger the group, the greater the protection against risks. Another problem caused by fragmentation is the possible low efficiency of the organization and operation of service providers (hospitals, family doctors or general practitioners, etc.). To reduce this inconvenience, in some countries, the various territorial funds have been vertically integrated. The existence of special programs dedicated to tuberculosis, HIV, drug abuse also creates fragmentation. It is difficult to achieve pooling systems, even if some patients are the same in different programs. The different budgets allocated to the different programs are the main source of fragmentation. This is because each program manages the relationship between the budget to be managed and the interventions carried out separately. Alignment primarily refers to the most effective coordination of the targets set through health policies and instruments. The lack of correlations can even lead to undesirable effects of funding. In some national systems, there are major inconsistencies between the measures taken for reform purposes in procurement policy and the governance agreements governing the entities providing medical services in the state system.

Excessive prioritization towards a single component of the reform can cause alignment problems. If the creation of an integrated benefit package requires a laborious volume of estimating the projected cost of the services benefited, it is

desirable that the results generated by these estimates be found in a package that is within the reach of the beneficiary.

1.5. Diagnosis of health financing at national level

Universal health coverage can be defined as providing financial protection against the costs of using health services for all people in a country, as well as enabling them to obtain the health services they need, where those services should be of sufficient quality to be effective. This definition has three specific objectives: (1) equity in the use of health services; (2) quality of care; and (3) financial protection. There are several aspects that need to be studied in order to make a diagnosis.

The general national fiscal context is closely related to the economic and administrative capacity of a country, and the most important subsequent component is the fiscal capacity.

Public administration specifications. The structure and functioning of central public authorities also has an effect on the achievement of universal health coverage objectives. They can also impact on the implementation possibilities of the various reform alternatives.

The financial management of the public sector refers to the way in which the state budget is constituted, the existing control in this process, the distribution of the expenses and the way of reporting them.

Financing methods. A solid descriptive overview of the health financing system is needed as a basis for identifying areas of the health financing system that could cause the system to underperform in relation to the universal health coverage and intermediate objectives.

Revenue growth mechanisms. It is important to consider in detail how revenues are collected and how contributions to the financing of the health system are structured, as these have important implications for moving towards universal financial protection and promoting equity in health financing.

Combining funding. In order to be able to maximize the redistribution of funds when they have already been collected, there is a technical solution for pooling.

Financial protection and equity in financing. Obviously, economic and medical theory argues that the most comprehensive financial protection is an essential objective of universal coverage. A subsequent issue, but one that can be addressed separately from the general problem, is the fairness of funding for care services.

Equity in the use of services and equity in the distribution of resources.

Universal coverage stipulates, among other things, that citizens can use the health care services they need. Inequity is most often manifested by differences in use between social, economic or age categories.

Quality of health services. Services for which there is a universal right should be of sufficient quality to be effective. The most problematic aspect is finding out the pertinent information that quantifies the quality of health care.

Transparency and accountability. It is important to assess the extent to which the rights and decisions of the health system are transparent to the population and the existence of mechanisms for the government and citizens to hold health system managers accountable.

1.6. Copayment

In economic theory, the purpose of co-payment is to reduce the demand that policyholders individually have for health care services. The mechanism takes place through a price increase imposed on the beneficiary of the medical service when accessing the service. A side effect sought is an increase in revenues as a result of this additional funding. However, there may be undesirable effects on health and effects on the unfair distribution of services received. The use of co-payment in the health area varies considerably between countries and largely reflects political choice as well as historical circumstances.

There are certain specifically defined objectives that are intended to provide a systematic overview of the extent to which co-payment (1) reduces individual demand for the services on which it is imposed, (2) has adverse effects on health or transfers use to services that they are not subject to co-payment, rather than a reduction in total utilization, and ultimately (3) give rise to distributional consequences.

The theoretical framework of co-payment. The theoretical study focuses on demand. This requires that the use of the services in which the co-payment is required be determined by demand. However, there is also a certain range of care services provided for which the use is also determined by the offer component. As a result, co-payment is only one of the tools that offers at least theoretically the possibility to use the corresponding services and expenses in the field of health. Other variants can be represented by the visit lists or the mechanisms developed on the care service providers.

Possible effects of co-payment on demand. It is assumed that in certain circumstances, the co-payment may reduce the individual demand for health care services by increasing the price paid by the consumer at the time of consumption. The size of the effect on demand can vary considerably and is primarily influenced by the price elasticity of demand.

Possible effects of co-payment on health. A co-payment for some services in one area, but not for others, may result in replacement from services that are co-paid to services that are free or less charged by the co-payment, than may decrease usage.

Possible effects of co-payment on distribution. Economic theory suggests that co-payment may have distributional consequences. There are reasonable assumptions that low-income people reduce the use of health care services more than the remaining population.

1.7. Voluntary health insurance

In some developed countries of the world (USA, Australia or Switzerland) voluntary health insurance (VHI) is a major or even predominant component in the health financing system. In contrast, it has a low share in the EU component states. The main causes come from long-standing habits, European nations have sought to uphold the principle of state-funded health care or social insurance that serves all citizens, regardless of ability to pay.

In the last three decades, the model with excessive public predominance in EU states has tried to change. The share of privately funded support has increased at the same time as the area of benefits provided by the public system has been reduced. The most targeted components were medicines and dental services.

The main categories of voluntary health insurance. Academic studies addressing this sector distinguish between insurance that overlaps with legal insurance and insurance that is the main means of protection for sections of the population. However, there are more detailed approaches, which seek to distinguish by function, ie whether the role of the insurance is to (i) replace the compulsory health care system from the point of view of the insured, (ii) provide a complement of services in those cases not supplied by the compulsory system or provided only in part.

Voluntary *substitutive* insurance is the least widespread in the territory. They allow certain persons to replace the compulsory system with the private voluntary system and are practiced in Germany, the Netherlands and Spain. The renunciation of

the public system is conditioned by the financial level of the person or household, the employment status on the labor market (private or state) and by the main occupation of the insured.

Complementary voluntary insurance has as main role the financing by pooling the risks for certain medical services. These are primarily (even if the others can be accessed) those that are only partially covered or excluded from the public system.

Chapter 2. National health systems in European countries

The procurement of financial resources for the functioning of each European medical system is very varied, including a mixture of public sources (through non-dedicated general taxation and general public insurance) and private (voluntary insurance, co-payment or direct payment from the pocket of the entire service). The variations registered from one national territory to another are consistent, but there are still some common points such as: the need for funding from various sources, well-qualified stable staff in the medical field, information support system for decision making, adequate infrastructure for health services.

2.1. Health systems of Western European countries

As a general framework, we can consider the countries of Western Europe as having rather a balanced system of financing from the three major sources: public financing, voluntary private insurance and out-of-pocket payments (OOP).

Austria. Universal social protection and the right to health care have been stipulated by law since the 1950s. Only about 1% of the population is not covered, and the system is mainly based on public insurance, financed as a share of the population's income. The insurance for various ailments is very comprehensive and a large part of the population is very satisfied with the care received. The public medical system is federalized and decentralized. Health insurance houses are numerous, but grouped in an association. Drug prices do not operate in a freely competitive market, as most are regulated.

Belgium. The coverage of citizens is almost universal, the national system being predominantly financially supported by public insurance. Patients are free to choose their doctor, who can be a specialist or a general practitioner. Patient satisfaction is significantly higher than the European average. A negative aspect is the less successful planning of the resource of qualified personnel. Structure of financing the Belgian health system: 36% from dedicated direct contributions, 38% from the general budget, 17% from direct out-of-pocket payments and 9% from private voluntary insurance.

France. The French system has an interesting specificity given by the unique combination of public and private financing. The state component is based on mandatory dedicated contributions, but there is also a massive complementation through private funding. The population is covered almost entirely. The range of services provided and to which policyholders are legally entitled is very wide. Insureds have a free choice among service providers. The system has a very good functionality, demonstrated by indicators such as life expectancy, disease burden and satisfaction of the population. The main source of funds is the legal contributions of employers, employees and even retirees, but the latter have a much lower share. Only 26% of the total expenditure of the national system is not covered by government institutions.

Germany. Basic financing in the health system is provided by compulsory social insurance. The aim is to cover the population as thoroughly as possible, equitable access to care services and a high level of medical services. The degree of satisfaction of the population in relation to the care received is very high. The aging population threatens the stability of the distribution principle on which social security is based. Three quarters of citizens are in the compulsory public system and 13% participate in one of the hundreds of insurance companies. There is a double funding of hospital institutions, both public and private. For outpatient services, beneficiaries are not charged extra. Dental care may require a co-payment that may even be full for certain benefits. The cost of medicines is uniform throughout the country.

Ireland. The main features are given by the net predominance of financing through general taxation, almost universal access to services and decision-making centralization. About a third of citizens are included in the first category, those with more modest financial possibilities. The population included in this segment can benefit from very wide care as well as diversity and gratuity. Two thirds of the

citizens are in the second segment, they pay directly for outpatient care or are in the situation where they have VHI that are of additional type. Both services and financing have a very low decentralization. The specialists in dentistry belong to the regional health institutions. Those who provide independent services receive income in relation to the services provided.

Luxembourg. Citizens are almost entirely covered by compulsory insurance schemes, through one of the 10 houses grouped by types of professions. Contributions are proportional to salaries or other sources of income and must be paid in proportion of 50% by employees and 50% by the employing institution. Senior medical staff fall into the liberal profession. The insurance companies do not have much independence, they operate under the tutelage of the specialized ministry. There is no free competitive pricing system, but through agreements between service providers and insurance companies.

Netherlands. There is a mix between compulsory and private social insurance. The first form of financing covers 62% of the population, and the private component a proportion of 31% of citizens. There are special components that cover strictly specific risks: catastrophic accidents resulting in disability, chronic diseases, mental illnesses. The health system benefits from good support from the population. More than half of the citizens subscribe to public insurance, through one of the almost 50 houses. About a third of citizens, especially those on high incomes and those in the liberal professions, have VHI policies, which are more expensive but allow for more demanding care.

United Kingdom. A national service, called the NHS, whose main objective is the management of the British medical sector in order to achieve the fullest possible coverage of citizens. This service has as its main source of funds general taxes. There is a wide variety of services covered for free. A feature of the system is the attention paid to primary and general care, the passage through which is mandatory before specialized clinical services. Health indicators have relatively good values. The major problem is the more difficult access than the European average to hospital care, for which there are considerable waiting times. The upper and middle medical staff in general and dental care are self-sufficient, although they have contracts with the NHS.

2.2. Health systems of northern European countries

The countries in this region are characterized by universal coverage of the public system and high percentages of GDP allocated to health. The medical systems are very efficient, the population being very satisfied with the quality of the medical services. Informal payments (OOP) and voluntary insurance (VHI) are low.

Denmark. The national health coverage for all citizens was achieved. The state also deals exclusively with authoritative financing and organization. The funds needed to cover services and investments come from general taxation. There is also a serious decentralization, the management of service provision is the responsibility of the authorities in the 14 regions. A fundamental principle in the Danish system is the start of care given by primary and general care staff, without which it is not possible to reach hospital care. The system is very decentralized, with great responsibilities given to the regions and municipalities. There are also some cost-sharing mechanisms, more often used for dental services and medication administered through pharmacies. The co-payment is less than 10% of the total value of the medicines.

Finland. The national system in this country is very nationalized, both planning and financing are done by the government, with funds from general taxes. The range of health care benefits is very wide. Strategies and planning for the provision of services take place centrally, through the specialized ministry. Survey data show high levels of satisfaction for almost 87% of citizens. Decentralization of decisions to regional and local authorities has been intensified. Although it works well above the European average, the Finnish system is changing, with an emphasis on increasing free competition in the healthcare market.

Sweden. The variety of services available through public insurance is particularly large. The financing of the public system is done primarily through the contributions of employers. There is a very strong decentralization, with regional councils and large municipalities having a major role in financing and organizing the provision of services. The largest proportion of funding is achieved through taxes collected by regional institutions (65%). The Swedes have defined three fundamental axes of interest for their system: respect for citizens' rights, system efficiency and equity. Health care reforms target the operating structures of care unit units.

2.3. Health systems of southern European countries

The countries of southern Europe are characterized by good public health coverage. To increase the quality of services, citizens are not significantly moving towards VHI, but rather towards out-of-pocket payments (OOP).

Greece. The financing of the health system is made both from the imposed public insurance and from the collected taxes. However, these funds are far from sufficient, so a serious supplement to private funding through VHI and OOP is needed. The public system is very closely controlled by government authorities. Current corrective trends focus on accessibility to health services, strengthening the public sector relative to the private sector, and increasing the importance of general and primary care. Even if some parameters of the population's health, such as life expectancy, look good, patients' satisfaction with the system is very low, less than 20% of citizens are satisfied with the overall care system. There are strong proposals to decentralize the system. The almost universal coverage of the population is achieved through several hundred insurance houses that operate autonomously.

Italy. The financing of the system is public, combining taxation with social health insurance. Medical care is provided by both the public and private systems. The Italian national system is very decentralized. A certain ceiling of services that the population can benefit from is stipulated by law. The responsibility of regional institutions is very high in terms of funding and public health officials. The Italian health care system has a weakness due to the lack of unity, which also causes difficulties in coordinating general policy. The coverage of citizens is almost integral through a national public service, SSN. Instead, its functioning and resource management are criticizable, especially in terms of lack of fluidity and speed in decision making.

Portugal. At the end of the 1970s, universal coverage of citizens began, with the establishment of a national insurance house and a public health service (NHS). The coverage of the costs in the medical system is done mostly on the basis of general taxation and a smaller part by the compulsory public insurance. The costs of healthcare per capita are much lower than the EU average. Citizens of Portugal do not have a very favorable opinion of their care system. Although growing, VHI covers just over 2% of total funding. Co-payment systems are required more than the European average for a wide range of care, with the exception of hospital services, outpatient services and public dental services. These co-payment contributions provide over 20% of the system's funding.

Spain. The system is deeply decentralized and regional. The national public health service aims to cover almost all Spanish citizens and a wide range of medical services provided. Statistical indicators on population health are satisfactory, generally having values above the EU average. There is a special interest in following up and correcting in time the economic efficiency of the units of provision of medical services, but also of the services themselves. There are currently difficulties in balancing funding. The increase of the average age of the population requires the identification of additional resources. The pricing of medicines is carried out according to a very precise formula, in relation to the cost of the chemical components. Drug prices are below the average of European countries.

2.4. Health care statistics in European countries

Data provided by the WHO (World Health Organization) and the OECD (Organization for Economic Cooperation and Development) provide an overview of European countries. Various aspects are analyzed: total, public and private financing of health expenditures, percentage of public financing with health from total government expenditures, correlation between variation of total health expenditures and variation of informal payments, number of doctors in hospitals and total number of doctors, etc. In general (figure 1) the most generous health budgets belong to the more developed countries (Switzerland, Luxembourg, Germany, Sweden), and the lowest to the former communist countries in the east of the continent. There are also some exceptions, such as Ireland, which allocates large per capita funding to available economic resources. Figure 2 shows that in the medium term (15 years) in the European Union the percentage of public funding for health in total government spending has increased slightly. This is average behavior and the conclusion can be misleading. In the richer countries (Switzerland, the Netherlands, Germany) this share increased rapidly, from values of 15%, 11%, 18% in 2003 to values of 23%, 21% and 20%. This trend primarily means an increase in the cost of medical care and the willingness of governments in developed countries to cover it.

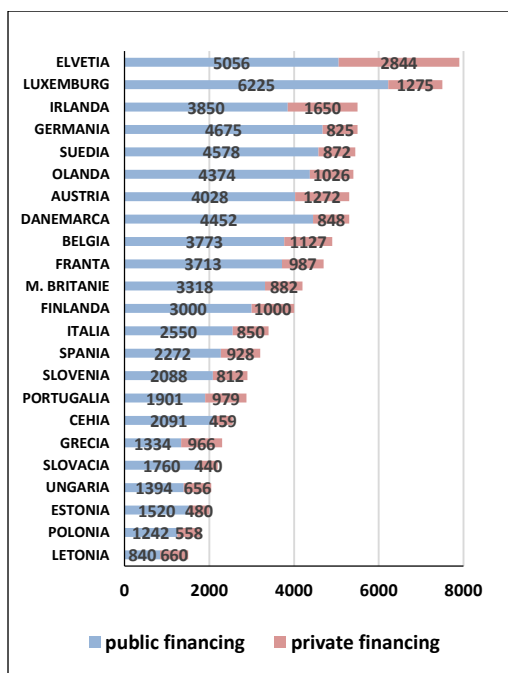


Figure 1. Health expenditures (\$ PPP per capita) in 2018 - public and private (source: own construction, OECD data)

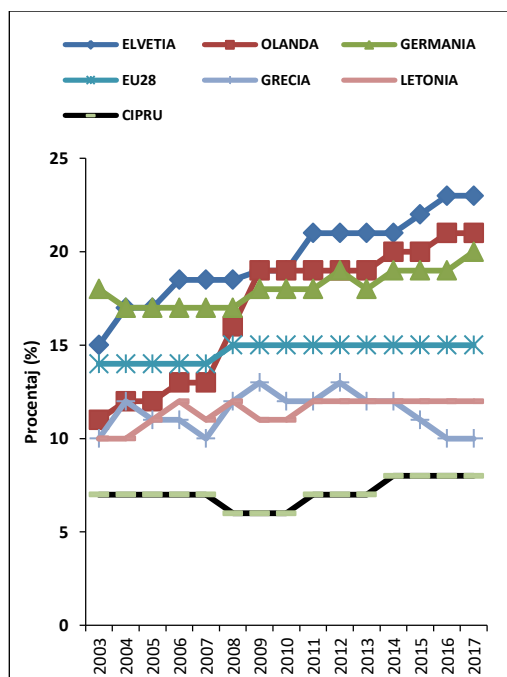


Figure 2. Percentage of public funding with health out of total government spending in the period 2003-2017

Figure 3 shows a positive correlation between the trend of total health expenditures and the trend of informal payments (out of pocket). In almost all countries observed both expenditures have increased considerably, for some nations the variation being over 200%. There is no geographical uniformity in relation to the manifestation of the two expenses. We note (figure 4) that the share of hospital expenditures in total health expenditures is not necessarily correlated with the economic development of the country. The highest percentages are for Estonia, Italy, Denmark and the United Kingdom, and the lowest for Belgium, Latvia, Luxembourg and Germany.

The number of beds per 100,000 inhabitants illustrates a more complex phenomenon (figure 5). On the one hand, we note that the indicator is not necessarily correlated with economic development. Some rich countries (Germany, Austria) have high values, and others (Denmark, Sweden, Great Britain) have low values. So there are other influencing factors. For example, as we noted earlier, hospital expenditures as a percentage of the total can be very different, compared to the more or less rapid way in which hospitalization is done in that country.

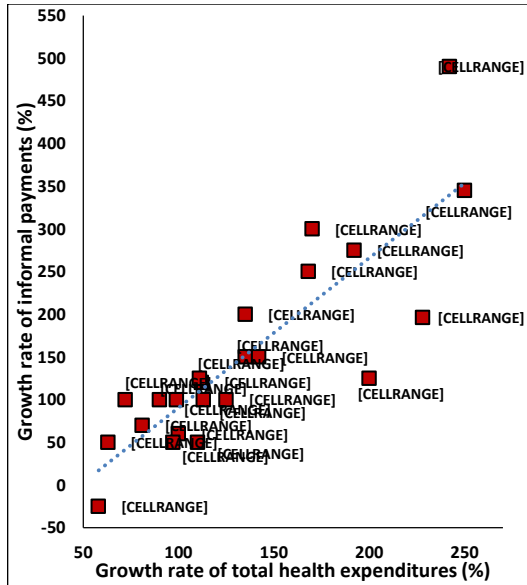


Figure 3. Correlation between the trend of total health expenditures and the variation of informal payments (out of pocket) in the period 2003-2018

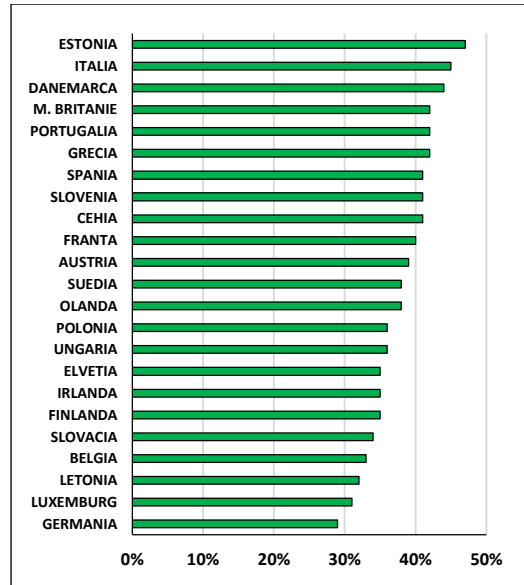


Figure 4. Percentage of hospital expenditures out of total health expenditures in 2018 (source: own construction, OECD data)

We could expect a direct correlation between the number of nurses and the number of doctors (figure 6), because a generous financing of health would lead to an increase in similar proportions of staff. The figures show an inverse correlation, although of low intensity (Pearson = -0.164). The explanation is due to a substitution effect between doctors and nurses, who can to some extent provide the same services.

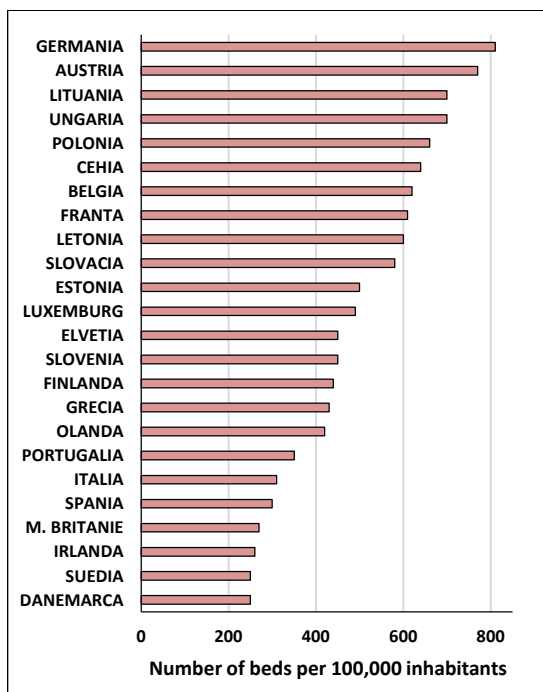


Figure 5. Number of beds per 100,000 inhabitants in 2018 (source: own construction,

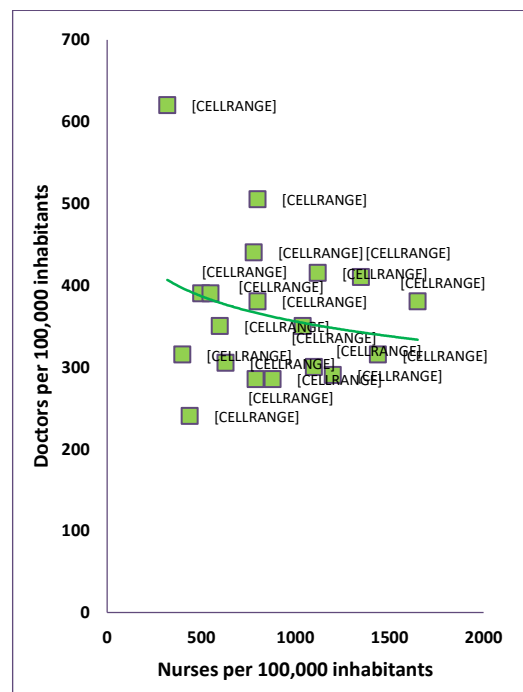


Figure 6. Correlation between the number of nurses and the number of doctors (per 100,000

Conclusions of the chapter

The main remark made as a result of the overview and detail of the health systems of European countries is the very high heterogeneity. The degree of coverage through the public system, the development of private health insurance the share of informal payments differs greatly from one country to another. Some states have a completely centralized system, while others offer more freedom to regional and local structures. Even the stages of health care vary significantly, some states rely more on family medicine, others on specialists. Even the numerical ratio between doctors and nurses is not at all homogeneous. The ratio between the number of existing medical staff and the newly educated one is also very heterogeneous.

Chapter 3. The Romanian health care financing system

Romania ranks last in the EU in terms of the share of health care expenditures in national income. Starting from a very low level in 1995, they grew rapidly over the next 15 years. Subsequently, however, the share decreased from 5.8% of GDP in 2010 to 5.6% in 2014. There are high values of the proportion of expenditure financed from public sources, only 20% of funds coming from other sources, compared to 24% at European aggregate level. The main source of public funding comes from the contributions imposed as a share on the population's income for public health insurance (67%). However, the proportion of direct payments from the pocket is also high, being the second source of financing (19%). As a source of funds, VHIs are insignificant, accounting for 0.1% of total funding.

3.1. Objectives and structure of the Romanian health care system

The Romanian health system has set precise objectives such as: establishing measures to combat communicable and non-communicable diseases; providing qualified health care for the care of the population; ensuring the health of citizens by establishing a correct demographic policy; providing medical care to mothers, children and young people; and so on.

Structure of the national health care system. Main structural components:

Ministerul Sănătății - Autoritatea centrală în domeniul de sănătate publică din România.

Direcția Generală de Asistență Medicală – structura a ministerului care realizează planificări strategice ale sănătății populației.

Inspekția Sanitară de Stat - coordonează activitatea de inspecție și control din cadrul direcțiilor de sănătate publică din Romania.

Direcția Generală Economică - elaborează și fundamentează bugetul, în urma stabilirii strategiei și priorităților ministerului sănătății.

Direcțiile Județene de Sănătate Publică (DJSP) - reprezintă autoritatea de sănătate publică la nivel local atribuția lor principală fiind de punerea în practică a politicilor și programelor de sănătate publică stabilite la nivelul ministerului.

Institutes și Centrele de Sănătate Publică - au rolul de îndrumare a direcțiilor de sănătate publică județene, supraveghează starea de sănătate, bolile transmisibile, monitorizează și evaluează serviciile de sănătate publică promovând sănătatea și mai ales educația pentru sănătate.

Centrul Național de Statistică și Informatică în Sănătate Publică (CNSISP) - organizarea sistemului de statistică informatică din cadrul unităților medicale.

Institutele Medicale Spitalicești - proprietăți publice sau private cu rolul de a asigura servicii medicale.

Casa Națională de Asigurări de Sănătate (CNAS) - conducerea și administrarea sistemului de asigurări sociale de sănătate, în scopul implementării politicilor și programelor de sănătate din România.

Ministry of Health - central authority in the field of public health in Romania.

General Directorate of Medical Assistance - the structure of the ministry that carries out strategic planning of the population's health.

State Sanitary Inspection - coordinates the inspection and control activity within the public health directorates in Romania.

General Economic Directorate - elaborates and substantiates the budget, following the establishment of the strategy and priorities of the Ministry of Health.

County Directorates of Public Health (DJSP) - represent the public health authority at local level, their main attribution being the implementation of public health policies and programs established at the level of the ministry.

Institutes and Public Health Centers - have the role of guiding the county public health directorates, supervising the health condition, communicable diseases,

monitoring and evaluating public health services promoting health and especially health education.

National Center for Statistics and Informatics in Public Health (CNSISP) - organizing the system of informatics statistics within the medical units.

Hospital Medical Institutes - public or private properties with the role of providing medical services.

National Health Insurance House (CNAS) - leading and administering the social health insurance system, in order to implement health policies and programs in Romania.

3.2. Methods of financing the medical system in Romania

The way in which the funds necessary for the activity of the medical system are collected, as well as the way of allocating these funds represents *the financing of the medical system*. The system of health services with the main objective of maintaining or improving the health of the population includes everything related to human, material, financial and information resources involved in the production of services to achieve the objective.

Financing from the state budget. The state budget consists of the collection of taxes and duties, and the amount collected is divided into areas of interest. The sources of origin of the state fund are:

- Taxes - on personal income, on companies, import / export taxes;
- Special taxes for health;
- Other budget revenues.

Financing through health insurance. It is a significant source of money that covers a large proportion of spending in the medical sector. Health insurance can be compulsory or voluntary (private). Social insurance is compulsory and is paid by each employee and by each employer, being fixed percentages of monthly income by law.

Private health insurance. Private insurance can be taken out individually, by each person and by a group of people - usually employees of the same company. This type of insurance compared to compulsory insurance takes into account the person's risk of illness or injury.

Direct payment financing can be carried out as follows:

- Full payment for services - made by people who do not have insurance or by people who have insurance but need medical investigations and thus rapid treatment.

- Co-payment - fixed as a fixed amount for the medical visit, the day of hospitalization, etc.

- Co-insurance - set as a proportion of the total cost of the consultation or treatment.

Community funding - the population pays in advance a sum of money in exchange for a package of medical services, the difference in money required for treatment is borne by the government.

3.3. Medical services provided

The types of services are very diverse.

Specialist medical care in clinical outpatient clinics. The insured person benefits from a basic package of medical services based on a referral note issued by the family doctor or a specialist doctor, except in cases of emergency. In the case of a diagnosis, surgical emergencies or other conditions in which most investigations have been performed, high-performance medical services may be recommended. The specialist doctor who consults in the outpatient department may recommend paraclinical investigations and at the end prescribe free or paid medicines. Minor children have the medical services included in the basic package.

Hospital care. Includes hospital services that require hospitalization: acute cases, chronic cases, or any other justified situations as well as hospital services that do not require hospitalization, are the services provided by one-day hospitalization. The hospitalization is performed based on the referral note from the family doctor or from the outpatient specialist as well as the document certifying the quality of the insured, except for emergency situations. For people who do not have insurance, hospitalization is done until the medical emergency is resolved.

Laboratory medical services. Insured persons have the right to medical tests based on the prescription of the family doctor or the outpatient specialist, without personal payment, these being provided in the basic package of medical insurance. Minor children and pregnant women receive outpatient medical tests, without the need for co-payment.

Dental services. Insured persons over 18 years of age have the dental treatments included in the basic package. Children under 18 have preventive treatments, dental treatments and orthodontic medical services, included in the basic package. The minimum package of dental services and emergencies are granted to any person whether or not he has unpaid insurance from him.

Compensated and free drugs in various situations: in outpatient treatment people who are insured; after consultation for each condition can be prescribed between 1 and 3 drugs; in the case of insured persons prescriptions can be compensated in the proportion of 50%, 90% and even 100%.

Medical devices. Insured persons have the right to those medical devices necessary for the recovery of deficiencies, such as: correction of vision, hearing, prosthesis of the upper / lower limbs, with or without personal contribution.

3.4. Substantiation of budget expenditures

Law 500/2002 on public finances establishes the principles, the general framework and the procedures regarding the formation, administration, employment and use of public funds and which establishes the responsibilities of the public institutions involved.

Budgetary principles. The principles clearly underlying the elaboration and execution of the state budget, the state social insurance budget, the local budgets and the budgets of the special funds are clearly established by law, as follows: (1) the principle of universality; (2) the principle of publicity; (3) the principle of unity; (4) the principle of annuality; (5) the principle of budgetary specialization; (5) the principle of monetary unity.

Preparation of budgets. The government, through the Ministry of Public Finance, is the one that elaborates the draft annual budget. Budgetary laws refer to: (1) budgetary expenditures, which include budgetary appropriations established in specific laws; (2) budget deficit and surplus; (3) regulations specific to the budget year; (4) the annexes of the budgetary laws, in these annexes are included the summaries of the budgets and the budgets of the main authorizing officers; (5) the amounts from some revenues of the state budget and the way they are distributed; (6) other specific annexes.

Budgeting methodology. The government prepares the current year's budget based on the forecasts of macroeconomic and social indicators. The Government approves and informs the budget, finance and banking committees of the Parliament on the main orientations of macroeconomic policies and public finances. The main authorizing officers submit to the Ministry of Public Finance the proposals for the draft budget. Once all the draft budgets are submitted to the Ministry of Public Finance, it draws up the draft budget and submits it to the Government. The budget is

approved by Parliament as a whole, in parts, chapters, subchapters, lines, articles and paragraphs, on the main authorizing officers.

Budget execution. The budget execution is the activity of collecting the budget revenues and of making the payment of the expenses approved by the annual budget.

Execution of payment flows. The state treasury is the institution that performs the cash execution of the budget which provides: the revenues of public institutions; payments by public institutions within the approved appropriations; payment and collection operations on public debt, including interest, commissions or other foreseen costs; any other financial operations on behalf of public institutions.

Substantiation of budget expenditures within the hospital. All the departments within a hospital unit substantiate each position entered in the revenue and expenditure budget, taking care to provide as efficiently as possible the necessary funds for a year of activity. The indicators reflect the volume of activity of a hospital and among them we mention: (1) Indicators regarding the cost of healthcare; (2) Indicators regarding the consumption of medicines and sanitary materials; (3) Sanitary efficiency indicators.

Substantiation of the personnel expenses is done taking into account the personnel expenses from the month prior to the elaboration of the budget. The substantiation of staff costs is carried out on the basis of the list of positions approved at the level of each department. Staff costs must be a maximum of 60% of the total budgeted expenditure.

Substantiation of the expenses with goods and services is achieved by drawing up a necessity of the expenses with medicines, sanitary materials, office consumables, materials for cleaning-disinfection, maintenance of medical equipment, current and capital repairs, food expenses, inventory items, services functional, and other types of expenses.

Substantiation of capital expenditures. Capital expenditures are the expenditures related to the acquisition of goods that have a long use and that constitute the endowment of a hospital unit, such as: medical equipment, equipment for performing medical tests, computers, etc.

Conclusions of the chapter

After leaving the communist regime, the Romanian healthcare system underwent a major transformation. The former model, associated with a totally centralized management and economy, has been replaced by the new social health insurance system. However, there are now remnants of the functioning of the communist period. They are manifested primarily by the lack of financial balance, the continuing lack of funds, the overly high dependence on hospital care, the low development of inpatient health services and poor levels of regulation, and the lack of clear vision and strategies.

Chapter 4. Health support through voluntary health insurance and collateral financing

As we have shown in previous chapters, there are several possible ways to finance health care. In addition, national medical systems have very different schemes of combining funding sources. In this chapter we will examine the implications of the efficiency and fairness of alternative strategies for financing the health system.

4.1. Efficiency and equity of health financing

Most countries intend for their health care system to be funded in an efficient and progressive way. We can consider a system of care and financing as effective if it manages to extremely reduce the losses caused by the increase of co-payments and incomes. It is possible to define a system as progressive if it redistributes some of the income from those with solid financial situations to the poorest. This subchapter examines how alternative financing systems work in relation to these two objectives. The approach will focus on the choices between general income, social security, private insurance and private financing from out-of-pocket (OOP) payments, as a whole or as components of a health care system.

We can consider that a health care system is economically efficient if it manages to organize resources to bring more health to all members of society. Technical efficiency is defined as the optimal ratio between the inputs of the health system (especially financial) and the satisfaction of health care needs. In a free, perfectly competitive economy, the market self-regulates, determining optimal payment rates for suppliers of goods and services. However, there are also possible

distortions or malfunctions of the market, which could cause too high prices. It is demonstrated that the competitive versus market monopolistic situation does not affect the choice of financing system. The fairness of the system refers primarily to the protection provided for people with lower incomes. There are also possible correlations between efficiency and financing and it manifests itself primarily when there is a major structural fragmentation. In order to achieve a proper design of the health system and related funding, other national economic aggregates must also be taken into account. If the health funds are precisely dedicated to these services, for an increase in their financing there is the option of increasing taxation or reducing other types of expenses. The problem is more difficult to solve because the demand for medical services is growing the fastest of all national budget expenditures.

4.2. Determinants of the development of voluntary health insurance in European countries

The literature has taught us an important lesson. A considerable part of the theoretical and empirical concerns is often focused on the factors influencing the insurance demand, but the influence of the determinants on the insurance sector is somewhat limited at the individual level. Motivated by this gap, our study complements the existing literature and outlines an overview of the health insurance markets in the European Union, using econometrics.

Results and discussion. The distribution of health insurance density values in the sample countries shows a very large variation, from \$ 0.86 / inhabitant in Hungary to \$ 2719 / inhabitant in the Netherlands. From descriptive statistics of the considered variables we observe that the relative variation of the health insurance density is much higher than of the variables related to incomes. This suggests that the development of health insurance is not only related to the purchasing power of the population, but also to other factors.

In unifactorial regressions all variables are significant (except the Gini index) and have the expected sign. In contrast, in multifactorial regressions, some of the coefficients lose their significance. This is due to the strong correlations between the explanatory variables. In order to eliminate this inconvenience and to be able to demonstrate the influence of purchasing power and financial development on the density of health insurance, we resort to composite indices. For the standard of living of the population of a country there is such an established index (*HDI* - Human

Development Index). This includes, among other factors, *GDP/capita* and *Life Expectancy*, which are found in our study.

Instead, for the financial development of a country we have built an aggregate index, *FIN_DEV* which contains variables related to the credit market, the capital market and the financial education of the population. The index is representative for its components, the aggregation is representative (Cronbach alpha = 0.761). The possible theoretical values of the indicator are between 0 and 100, high values signifying a good financial development of the respective country. In our sample, of 30 European countries, the lowest value is registered by Romania (4.9), and the highest by the Netherlands (89.6). In regressions that use *HDI* and *FIN_DEV* composite indices as explanatory variables, they are both significant, whether they are used alternately in regressions or together (Table 1, OLS 11-13). The analyzed sample consists of European countries, which are linked by significant socio-economic relations. This intense interdependence must be taken into account, as grouping or contagion effects may occur. To address this, we have included space as an analysis dimension. In doing so, we also took into account the neighborhood effect in the analyzed sample.

We used simple spatial regression with latitude and longitude as independent variables. Only the longitude coefficient proved to be significant (p value = 0.002 < 0.05) and negative, proving that as we go from west to east, the density of health insurance decreases. To evaluate the contagion and diffusion processes, we first built the maps of the *LN_DENS* reports on *FIN_DEV* and *HDI*. Due to the high level of heterogeneity, these maps were constructed in spatially smoothed form (Figure 7).

Table 1. Results of multifactor OLS regressions and regressions with composite indices; dependent variable *LN_DENS*; coefficients and t-stat

	OLS (9)	OLS (10)	OLS (11)	OLS (12)	OLS (13)
<i>GDP_CAP</i>	0.009 (0.73)
<i>GDP_PPP</i>	.	0.013 (0.93)	.	.	.
<i>GINI_IND</i>	-0.002 (-0.03)	-0.003 (-0.05)	.	.	.
<i>URBAN</i>	*-0.039 (-1.88)	*-0.040 (-1.93)	.	.	.
<i>LIFE_EXP</i>	**0.270 (2.25)	**0.263 (2.24)	.	.	.
<i>MK_CAP</i>	**0.0178	**0.018	.	.	.

	(2.22)	(2.25)			
<i>PRV_CRD</i>	0.008 (0.81)	0.009 (0.90)	.	.	.
<i>FIN_LIT</i>	0.020 (0.85)	. 0.021 (0.94)	.	.	.
<i>HDI</i>	.	.	***32.44 (6.15)	.	**19.67 (2.51)
<i>FIN_DEV</i>	.	.	.	***0.055 (5.84)	**0.029 (2.12)
constant	*-17.60 (-1.76)	*-17.36 (-1.80)	***-24.73 (-5.26)	***1.425 (2.78)	** -14.78 (-2.29)
R ²	0.739	0.743	0.575	0.550	0.635

Note: ***, **, * : significant at the level of 1%, 5% and 10%.

Source: Mureşan, ... and Pintea, 2021 in STATA.

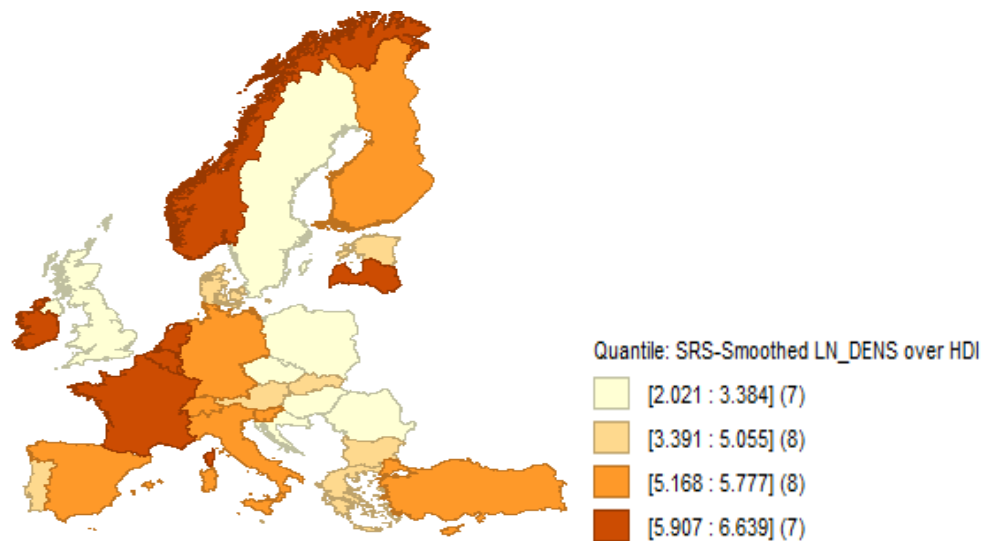


Figure 7. Quartile map for the ratio between *LN_DENS* and *HDI*

Source: Mureşan,... and Pintea, 2021 in GeoDa.

The lack of a diffusion and contagion process is finally confirmed by the regression analysis, because the classical OLS model is not rejected by any of the spatial diagnostic tests. Consequently, there is a significant grouping based on longitude, but there are no significant processes of contagion and diffusion.

Conclusions and recommendations. For a sample of 30 European countries we assessed the macroeconomic factors that determine the development of the private health insurance sector. As expected, there is a high heterogeneity in terms of health insurance density in the analyzed sample. These large discrepancies are due to the past of each society and the level of socio-economic development. Our first set of

results clearly shows a positive relationship between GDP and health insurance density. A second very important result is the demonstration that, in Europe, both the level of human and financial development significantly and positively influences the private health insurance sector.

The spatial analysis clearly showed that the positive relationship between the level of development and the health insurance sector has materialized in an East-West clustering direction. Instead, the analysis highlighted the lack of spatial contagion and diffusion processes. This is a very important result, because the private health insurance sector is more influenced by the internal conditions, inherent specific to each country.

4.3. The effect of total funding and voluntary health insurance on public health

The satisfaction felt by the population as a result of the medical services provided to them serve as a basis for possible systemic reforms. In general, there is a strong positive correlation between the satisfaction of consumers of care services and total expenditure on public health across European countries. There are certain common issues at the level of the countries analyzed. First and foremost are issues related to equity, similar accessibility to services of the same level or quality, monitoring and control of services provided, in particular their quality, the correct and efficient management of available financial resources. The solutions must come both from an economic perspective, from an increase in financing, and from a medical perspective, from the technological developments in the field.

The most important objective is to ensure the health of the population, from which derive the objectives of (i) high average level of health and (ii) the most ethical distribution of services provided for the purpose of health insurance. The care services provided must be customer-oriented, ie contain confidentiality and autonomy. We can distinguish two large groups of countries in Europe, those that finance mainly their medical system through the state budget and those that finance it mostly through direct contributions to public insurance.

Based on the academic literature prior to previous studies and personal empirical observations, we formulate the hypotheses: (H1) The general level of funding of the health system positively influences life expectancy and accessibility to medical services; (H2) The development of private health insurance leads to increased life expectancy and accessibility to medical services; (H3) The decentralization of and

financing of medical services positively influences the life expectancy and accessibility of medical services.

Results and discussion. To test the hypotheses we chose a linear specification of the model and estimated the parameters using OLS regressions. The data from our study refer to 30 European countries.

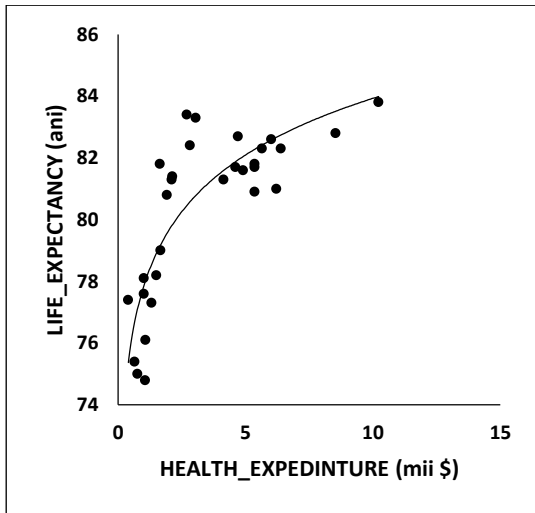


Figure 8: Nonlinear correlation between *LIFE_EXPECTANCY* and *HEALTH_EXPEDINTURE*

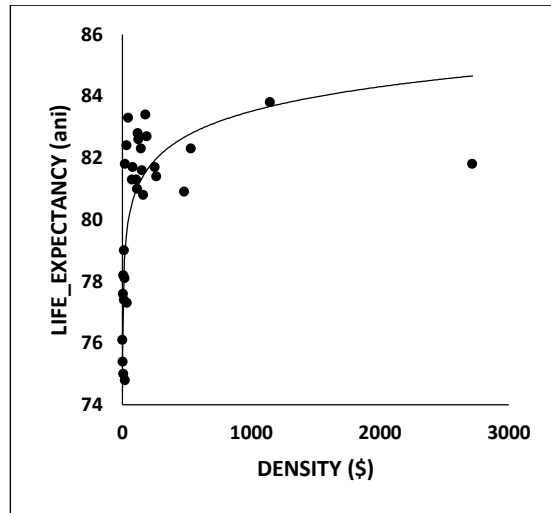


Fig. 9: Nonlinear correlation between *LIFE_EXPECTANCY* and *DENSITY*
Source: Pintea et al. (2020)

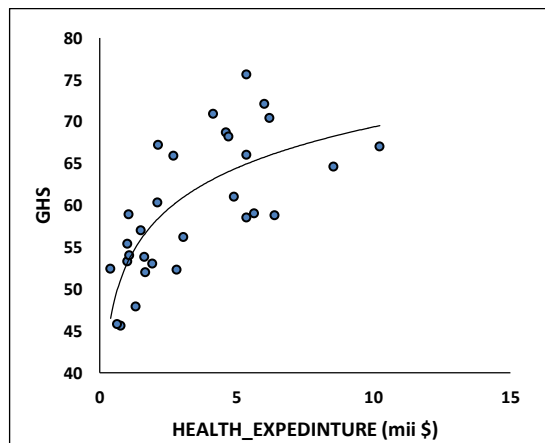


Figure 10: Nonlinear correlation between *GHS_INDEX* and *HEALTH_EXPEDINTURE*
Source: Pintea et al. (2020)

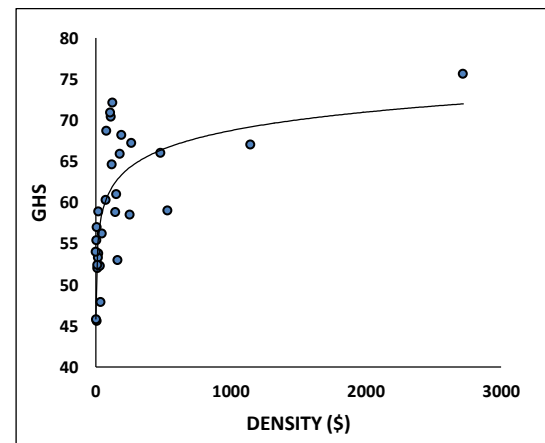


Figure 11: Nonlinear correlation between *GHS_INDEX* and *DENSITY*
Source: Pintea et al. (2020)

Figures 8-11 show that the correlation between any of the endogenous variables (*LIFE_EXPECTANCY* and *GHS_INDEX*) and any of the explanatory quantitative variables (*HEALTH_EXPEDINTURE* and *DENSITY*) is not linear, but

rather logarithmic. As a result, the variables *HEALTH_EXPEDINTURE* and *DENSITY* will be used in regressions in their logarithmic form.

Table 2: OLS regression coefficients for *LIFE_EXPECTANCY* and *GHS*

	Dependent variable: <i>LIFE_EXPECTANCY</i>		Dependent variable: <i>GHS_INDEX</i>	
	<i>OLS 1</i>	<i>OLS 2</i>	<i>OLS 3</i>	<i>OLS 4</i>
<i>Ln HEALTH_EXPEDINTURE</i>	***2,2 34 (4,67)		***5,517 (3,39)	
<i>Ln DENSITY</i>	0,295 (1,30)	***1,146 (6,10)	1,136 (1,47)	***3,245 (5,35)
<i>DECENTRALIZATION</i>	***1,536 (2,99)		***6,485 (3,72)	
<i>Constanta</i>	***61,05 (19,6)	***75,58 (9,68)	9,551 (0,91)	***46,31 (17,01)
	$R^2 = 0,789$	$R^2 = 0,571$	$R^2 = 0,731$	$R^2 = 0,505$

Note: ***, **, * : significant at the level of 1%, 5% and 10%.

Source: Pintea et al., 2021 in STATA.

The regression results are very clear for the variable *Ln HEALTH_EXPEDINTURE*, being very statistically significant (Table 2), even in the presence of the other explanatory variables and even if it is correlated with them. There is a positive influence on both lifespan (*LIFE_EXPECTANCY*) and accessibility to a quality healthcare system (*GHS_INDEX*). As a result, hypothesis H1 is fully accepted. However, a more detailed analysis may be required. Expenditures for health services were analyzed only as a total volume. Due to the lack of data, we could not assess the effect of the structure of these expenditures on the health of the population. The role of the level of private health insurance is not as clear. The variable *DENSITY* is statistically significant if it is alone in regressions, but statistically insignificant in the presence of the other explanatory variables. The result can be explained by the strong correlation with *HEALTH_EXPEDINTURE* (Pearson coefficient = 0.794), even higher than the correlation with endogenous variables. Consequently, we accept the H2 hypothesis with reservations. The decentralization of medical services clearly has a positive and significant role, both in terms of lifetime (*LIFE_EXPECTANCY*) and in terms of accessibility to a quality health system (*GHS_INDEX*). As a result, we accept

hypothesis H3. However, it would be interesting to study the structure of decentralization.

Conclusions. This study is not intended to explain in detail the factors that determine health, longevity and accessibility to health services in a country. However, it manages to highlight the positive role of public funding, private health insurance and the decentralization of the health system. There are also some limitations of the study, mainly due to the lack of more detailed data, especially those related to the funding structure.

Conclusions. This study is not intended to explain exhaustively the factors that determine international sports performance, life expectancy and the general health of the population. However, we managed to highlight the positive influence of sports funding, both basic and extended. Of course, there are limitations to the study, but they open up future directions for research.

Conclusions of the chapter

Qualitative and quantitative analyzes show that regardless of the form of financing, the functional efficiency of the medical system can be achieved. The result is even more conclusive if we appreciate the efficiency in a narrow sense, in terms of the costs generated.

The study showed that there is a high heterogeneity in terms of the density of health insurance between countries. The results clearly show a positive relationship between GDP and health insurance density, explained by the fact that the private health insurance sector has been able to develop in countries where the economic environment has allowed private intervention in the economy. Although we did not intend to explain exhaustively the factors that determine health, longevity and accessibility to health services in a country, we managed to highlight the positive role of public funding, private health insurance, decentralization of the health system.

Final conclusions

The thesis was written as a doctoral thesis in Economics. As a result, both the cited literature and the main results fall within this approach. In the empirical studies in the last chapter, causal relationships between financial aspects and those related to the health and longevity of the population were highlighted through regression analyzes.

According to the profile literature, we started from the idea that the approach to health financing policy includes certain basic principles and concepts. In order to start with a clear direction, the objectives formulated for financing the system must be identified separately from the instruments that allow the achievement of the objectives.

The evaluation of different national systems is very useful, but the tools for achieving the objectives are more difficult to copy. Based on the analysis of some reports of the European institutions and of the component states, we could see first of all from the observation of the health systems of the European countries that there is a great variety, both conceptually and as a way of functioning.

A chapter was devoted entirely to the detailed analysis of a national health financing system, namely the Romanian one. There are still remnants of officials from the communist period. There is a lack of financial balance, a continuous lack of funds, an excessively high dependence on the care provided by hospitals, the reduced development of non-hospital medical services and weak levels of regulation and the lack of vision and clear strategies. The tax base is still very small, only 25% of the population effectively finances compulsory insurance, making the budget very limited.

Thesis contributions. The central point of the thesis is the demonstration of the beneficial role of private voluntary insurance and collateral financing by supporting sports activities on health and longevity.

Elements of originality of the thesis. In addition to trying to cover as much as possible the issues related to health financing, we also managed to achieve some original elements: (1) Analysis of geographical distributions within Europe, of some aggregated indicators at national level, such as: weights and totals of public funding and private, the trend of medium-term financing, etc .; (2) The analysis in the

European space of the correlations between some aggregated indicators at national level; (3) Identification by multifactorial regression analysis of the influencing factors of the development of voluntary private health insurance at national level; (4) Highlighting in the European space an East-West clustering direction in the health insurance sector; (5) Rejection of the hypothesis regarding the existence of transnational diffusion and contagion effects regarding the penetration of voluntary health insurance; (6) Identification by multifactorial regression analysis of nonlinear causal relationships related to total health financing, the share of voluntary health insurance, decentralization of the public health system, life expectancy and accessibility to medical services.

Directions for research development. The challenges will continue through the inherent demographic changes, the emergence of innovative medical technologies, the increase of patients' demands on the type and quality of services, changes in the legislative and administrative framework. Of course, all these changes will require resuming the analysis, starting from other data. However, the framework of the analysis remains valid and can be easily adapted, using the identified causal relationships.

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