Determinants of health care expenditure: the Colombian case

Determinantes del gasto en salud: el caso colombiano

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Abstract

The article described elements related with de determinants of health care expenditure in Colombia, in which the Per Capita Unit estimated per year and the insurance charges to FOSYGA represent the main points related with the determinants of health care expenditure, but the question is why and how they impact on the total expenditure?. The sustainability and the finance protection is a priority. For these reason the analysis of the factors and determinants of health care expenditure is a need for the countries. This paper is a reflection and a general approach for understanding better the factors driving the health care spending in Colombia.

Keywords: Social Security, Health Economics, Health, Health Resources, Financing, Organized.

JEL Clasification: H11, H51, H55, I18,P46

Resumen

En este artículo se describen algunos elementos teóricos y contextuales de los determinantes del gasto en salud en Colombia, pieza clave en el financiamiento del Sistema de Salud. En general, los principales factores que determinan el gasto en salud son la unidad per cápita y los recobros al FOSYGA. La pregunta aquí es ¿por qué la UPC es un determinante del gasto en salud, cómo es estimada y cuál es el impacto de la UPC y de los recobros en el gasto en salud en Colombia?. El artículo es una aproximación reflexiva que permite comprender mejor los factores que dirigen el gasto en salud en Colombia.

Palabras clave: seguridad social, economía de la salud, financiación de la salud, recursos en salud, organización de la financiación.

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1. Introduction

The financing of health care systems represents one of the bigger challenges for policies makers around the world. We know that the health care services have a cost and that the financing of health care systems is an important field into the countries' expenditures. The financing is a function that involves an organized, controlled and structured flow of resources; those aspects must be taken into account in making decisions. Whichever model of health system, the financing should include, at least, revenue, pooling and purchasing. The revenue is related with how the resources are collected, and, in general, the resources come from general or specific taxation, compulsory or voluntary health insurance contributions, direct out-of-pocket payments and donations (WHO, 2010). Pooling is the accumulation and

management of financial resources, its main purpose is to spread the financial risk associated with the need to use health services, and purchasing is the process of paying for health services (WHO, 2010). At the same time, these cores have to be in a relationship between them and with the context for assuring quality, equity, efficiency, transparency and accountability.

The above lines describe some elements in which the financing is not only an issue related with spending money, but different factors converges and interacting on it. An example for a better understanding of this assumption is the case of USA. Studies of Organization for Economic Cooperation and Development Countries (OECD) showed that the United States spends much more on health care (per capita and total percentage of GDP) than any other country (Anderson, Hussey, Frogner &

Waters, 2005); at the same time, it is one of the countries with higher out-pocket payments, higher proportion of households with catastrophic expenditures (Xu, Evans, Kawabata, Zeramdini, Klavus & Murray, 2005), much higher prevalence and mortality in chronic disease (Anderson, Frogner & Reinhardt, 2007). Expenditures of the United States on health care surpassed $2.3 trillion in 2008, more than three times the $714 billion spent in 1990, and over eight times the $253 billion spent in 1980 (Kaiser Organization, 2010). Anderson et al. (2005) explain that this situation may be attributable to the lack of supply restrictions of U.S., the better access to new expensive technologies, the lack of waiting lists, the higher U.S. incomes and cost of living, the lawsuits, the power of insurance companies, the pharmaceutical market, the transitional epidemiology and the demographics changes. Here we can see the diversity of factors relates with the financing and health care expenditure and how the specific context can be determinant, also the fact that health expenditures are not only determined by income.

The increase in health expenditure is a common situation in most countries. In the last 60 years, the health care expenditures have risen from 3 % of world´s GDP in 1948 to 15 % today (OECD, 2006a). This growth has become a policy priority, as the government, employers, and consumers increasingly struggle to keep up with health care costs.

The sustainability and the finance protection are priorities. For these reason, the analysis of the factors and determinants of health care expenditure is a need for the countries. Why? Because controlling health care expenditures requires a solid understanding of the factors driving the growth in spending.

The health care expenditure (HCE) is a cornerstone into the financing systems. The OECD considers that health care expenditure must be carefully planned, regardless of who is paying or providing health services. The expenditure includes spending on health care by people treated in private hospitals, clinics and care homes, by charities, by the armed forces and in prisons, as well as the cost of occupational health care and the value of government benefits paid to those providing home care for their relatives (OECD, EuroStat & WHO, 2011). The Economical Department of OECD proposed a classification for determinants of HCE based on two main factors: demographics and non-demographics (OECD, 2006b; Oliveira & De la Maisonneuve, 2006); however, we must bear in mind that health care expenditure and most of its determinants are non-stationary and are linked in the long run.

Demographic drivers: an explanation of why the demographic changes are determinants of HCE is based on the combined effect of: first, major health expenditures occur in the proximity to

death; second, the average expenditure curves reflect the interaction between these "death-related costs" and mortality rates. While mortality rates increase with age, the costs of health care near death tend to be higher in young and prime age than for elderly people (j-curve); and third, how is the health of the *survivor's* population (healthy aging) (OECD, 2006b).

Non-demographic drivers refer to aspects related with income growth (which is considered the main non-demographic driver), income elasticity, technology and relative prices (technical progress can be cost-saving and reduce the relative price of health products and services, but its impact on expenditure will depend on the price elasticity of the demand for health care) and the administrative cost (it is estimated that at least 7% of health care expenditures are for administrative costs like marketing, billing) (Kaiser, 2010).

The interaction between these different determinants generates a scenario that must be analyzed. The adaptation of the financing systems to the change circumstances or scenarios provides a tool for improving the sustainability, the efficiency and the health population status. Taking into account this premise, the next lines try to explain what the determinants of HCE in Colombia are. But first it is necessary to understand some context elements of the country and the financing system of health in Colombia.

2. Colombian context: an overview

Colombia is a middle income country with a complex context in which converges inequalities, poverty, conflict, violence, displacement, and in general, special socio-economical conditions that impact the population health in different ways. We can describe three of the most representative aspects for approaching in the Colombian context: the demographic, the epidemiological and the socio-economic.

According with data from Ministry of Health, in 2010, the general population in Colombia was estimated in 45.509.584, with a growth rate of 1,15 per year (Table 1), the life expectancy at birth is 75,56 years, 72,07 years for men and 78,54 for women. The economically active population is 26,6 % and the elderly population represents 9.8 % (Ministerio de la Protección Social, OPS & WHO, 2010). The fertility rate corresponds to 2.35. If we compare the Colombian demographics indicator with other Latin-American countries, we can say that the situation follows up similar trend related with the demographical transition in which the fertility rate and the decline in the mortality affect the growth and the population pyramid (BID, CEPAL & CELADE, 2005); at the same time, this transition generates different health demands in the country; this premise means that the elderly population is growing up and this age is related with the highest expenditures for health care systems, showing us a need to adapt the systems for this situation.

Table 1. Socio-demographical indicators

POPULATION STRUCTURE (2010)	
Total Population	45.509.584
Women	23.042.924
Men	22.466.660
Population growth rate	1,15
Population less than 15 years	28,6
Population between 15-19	9,7
Population between 15-49	26,6
Population with 60 or more years	9,8
Urban population	75,56
Rural population	24,4
Life expectancy at birth	75,56
Women	78,54
Men	72,07
Total fertility rate	2,35
Birth rate (per 1000 inhabs.)	18,89
General mortality rate (per 1000 inhabs.)	5,80
Infant mortality rate (per 1000 inhabs.)	17,10
Mortality rate under 5 years (year 2008)	18,5
(1000 live births)	62,76
Maternal mortality proportion (year 2008)	

Data From: Informe de salud Colombia: Indicadores Básicos 2010 (Colombia Healthinformation: basicindicators 2010[12]

The epidemiological profile, as the demographic aspect, has had a transition to chronic conditions, however there is still persistence of communicable disease. In 2010, the rate of communicable disease was 29.12 per 1000 inhabitants. The reported cases of malaria were 79.198 and dengue 51.543, both have been a public health problem in some endemic areas; TBC rate in the same year was 16,3 per 100.000. It is important clarify that this rate is not directly related with AIDS; ¿how could be the situation in some developing countries, when in Colombia the incidence rate of AIDS is 16.3 per 100.000 inhabitants? The chronic condition is expressed in the highest mortality rates of cardiovascular disease, which are the main cause of death; for 2010 the rate was 359,9,7 per 100.000, followed by cancer of digestive system with 103,5 deaths per 100.000 (Ministerio de la Protección Social et al., 2010).

The socio-economical aspect is the third one to address in the Colombian context. To describe it, we take some indicators with high impact on health population like

education, poverty, incomes, displacement and access to health care and coverage. The poverty and the inequality represented two of the biggest problems in Colombia: almost the half of population is poor, 45.5 %, (Table 2) and 16.4 % is extremely poor. According with UNICEF, the poverty incidence is growing in the youngest population (under 18 years) and the gap between regions in Colombia is deepening (UNICEF et al, 2010). Núñez (2009) found that in the last ten years the relationship between quintile 5 (the poorest) and 1 (the richest) rose from 19,1 to 42,1 and GINI coefficient increased from 0,546 to 0,56; at the same time, the 20 % of the poorest population took part in the 2.3 % of the total GDP, which shows us how the inequalities have deepened increasingly.

Table 2. Socio–economic indicators in Colombia 2010

POVERTY INDICATORS*	
Poor population (living with less than 2 US$ a day)	45.5%
Population in extrem poverty (living wuth less than 1 US$ a day)	16.4%
Global malnutrition in children under 5 years (2008)	7,0%
GINI coefficient	0,56
EDUCATIONAL INDICATORS	
Iliterancy rate in over 15 years population	6,62%
Cover rate for elementary school	98.9%
ECONOMICAL INDICATORS**	
GDP (billion of US dollars)	288,19
GDP growth	4,12%
Health Care Expenditure (GDP%)	6.4%
Public (It includes Social Security resources)	84,2% (5,38%)
Private	15.8% (1,02)%
Unployment rate (2011)	9,2
DISPLACEMENT	
No. population in displacement (Historical information)	3.875.987
HEALTH CARE SYSTEM:INSURANCE INDICATORS	
ContributoryRegimen	53,10%
SubsidizingRegimen	40,16%
Populationuncovered	4.44%
SpecialInsurance (Militaryforces)	2,3%

* Data from: UNICEF, NationslDepartament for Planning, Ministery of Social Proteccion.
** Trading Economics. In: http://www.tradingeconomics.com/colombia/gdp

The displacement is a special situation for considering in Colombia, it is a consequence of the internal conflict. There is not an official census for this population but it is estimated on more than 3 millions of persons since 1997. This phenomenon impacts the health population because of two main reasons, first the displacement forces people to move to big cities in uncertain conditions, to live in makeshift homes in terrible conditions of overcrowding and appalling sanitation; and second, the health insurance, and therefore access, are not achieved immediately, as people must first apply at the new city and this process takes time.

The description of the most representative demographical, epidemiological and socioeconomic indicators in Colombia gives us a quick idea about the context and the main problematic for understanding the health dynamics into the population, and also for approaching to the scene of the determinants of health care expenditure in the country.

2.1 The health care financing model in Colombia

The health care system in Colombia is based on the model of social health insurance and is comprised of three different regimens: 1. The contributory; 2. The subsidizing, and 3. Special regimen: a statutory model of health care for Military Forces, ECOPETROL and National Police employees with its own

structure. The latter is not discussed in this paper.

The broad structure of the General System of Health Social Insurance (Sistema General de Seguridad Social en Salud) is based on the universal insurance and the solidarity, with separate functions; namely, the financing, the regulation, the providing services and management are separated but articulated. The insurances companies (publics and privates) compete for the affiliates and provide them, by different paths, a package of health services. The name of the package is Obligatory Health Plan (Plan Obligatorio de Salud -POS); this POS until 2011 was different between regimens, the subsidized package was about the half of the contributory package. The Agreement 29 of the National Commission for the Regulation in Health (CRES, by its Spanish acronym) ordered updating and gradually leveling of the POS (CRES, 2011), from 2012.

Each regime has different resources and different revenues paths; the contributory (CR) receives the contributions of the affiliates and the subsidized (SR) is financed by taxes and also by the solidarity of contributory regimen. The majority of the resource is concentrated in a big pooling called *FOSyGA* Solidarity and Guaranty Found (Fondo de Solidaridad y Garantía) which is trusteeship but with control of the Ministry of Social Protection and surveillance of Health Superintendence (another governmental stakeholder).

Below we explain how the financing process is into each regimen.

The Contributory Regimen CR is supported by the mandatory contributions of employees and employers payrolls. This contribution represented the most important resources for the CR and it is defined by the incomes of the contributors. The contributor has to pay 12,5 % of his/her wage; if the contributor has a formal employ, the employer pays the 8,5 % of the total contribution and the 4 % left is paid by the employee. If the contributor has an informal job, he/she must pay the total contribution, namely, 12,5 % of his/her monthly income. It is the same for pensioners (Graphic 1). The family of contributor can be covered for the insurance company with the same package –POS-. No one can be member of CR if he/she earns less than one minimum wage, which for the last year was around 280 dollars. It means, if a person has an income less than 280 dollars, he/she has to be part of the subsidizing regimen.

Graphic 1. Financing structure in Contributory Regimen -RC-
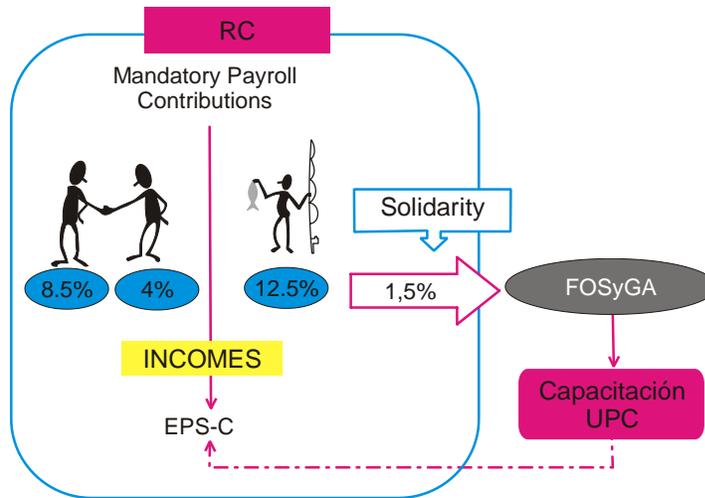
The mandatory payroll goes directly to insurance companies -EPS-C-, which make the revenue collection, the pooling and the purchasing (Giedion, Panopoulou & Gómez-Fraga, 2009). 1.5 % of total contributions are sending to the FOSyGA, this input is called *Solidarity* and represent the private portion of the GDP. The insurance company has into consideration the Per Capita Unit, because if an employee contribution is less than the estimated PCU, the government has to transfer the amount to the insurance to complete it. Here is

important to note that there are others ways to make or request additional government resources –FOSyGA– to insurances companies; this issue will be explained after.

On the other hand, in the SR financing is concentrated the government effort, both national and local. The government, through taxes, provides the great part of FOSyGA resources; from this pool the government pays by insuring and providing services to the subsidized population. The package of services in this case is less than contributor regimen, and also the insurances companies -EPS-S- are different. The government pays to EPS-S according with the Per Capita Unit estimated per year, so, it represents the main point in the determinants of health expenditure in Colombia. But the question is why and how it is estimated.

3. Drivers of health care expenditure in Colombia

So far we have described how the financing is in the health care system in Colombia, some theoretical aspect about the determinants of health care expenditure in the Colombian context, now we can go deeper into the element that drives the HCE in Colombia. If we remember, in 2009, the health care expenditure was the 6.4 % of the total GDP, 5,38 % corresponding to public and social security resources. This GDP percent is destined for paying the PCU to the insurance companies in both regimes, namely, for paying the POS and

for paying events that sometimes are not covered by POS, which is known as recovery. According with above elements, one of the main drivers of health care expenditure in Colombia is the PCU fixed per year. Other important element in the HCE is the recovery or the insurance charges to FOSYGA for aspects not covered in the POS. To understand the role of those elements, we will explain the configuration of each one.

3.1 Role of the Per Capita Unit (PCU) in the determination of health care expenditure

The PCU is an annual value recognized by each insured at the System for covering the risk of diseases that need treatments or services included in the POS, in this way, the PCU is one of the main variables for making decisions regarded to financing topics (CRES, 2011).

The PCU has the following characteristics: a) it is a tool and its aim is to guarantee the "right to health" and the health care access, in an effective way. This Unit is an amount that represents how much money must pay the government by each insured citizen, independently of his incomes, it means, that the government pay the same amount by person in each regime, but not between regimes and this is an important problem in Colombia related with the equity, on which we will discuss later. However since 2000 the government has

done efforts for leveling progressively the PCU; now this process is in a 60 % of the goal. It is important to note that according with the Supreme Court of Colombia, the PCU represents, specially, "the cost calculated for providing services in conditions of: Quality, Technology and Hostelry", and it has to be based on epidemiological profile of population.

For calculating the PCU, the special commission takes into account the following elements: population characteristics, actuarial techniques and statistics models. In general, the calculus of the PCU is based on "premiums principles". The *population characteristics* used into the calculus are, age, sex and geographical area.

The *Actuarial techniques:* the Actuarial sciences are the discipline that applies mathematical and statistical methods to assess risk in the insurance and finance industries. For Colombian case, the techniques or elements used for assessing the risk are:

- The cost of the POS (according with the insurance company information, that means EPS and EPSS), the government through information systems estimates the cost of one person that uses the services in average per year.
- The cost estimation of new procedures that will include into the package is an assumption.
- The net premium: takes into account

the cost for providing services and the risk of the total population in each regimen.
- The commercial premium: includes administrative cost and utility.
- The adjusted by IBNR (Incurred but not reporter claims) and IBNER (incurred but not enough reported claims) are subjective estimation often used by insurance companies to recognize losses incurred but not reported, in other words, these are mechanisms based on observation of past events and their projection into the future, to solve the dilemma of how to estimate these responsibilities by events which are not known at present, but with clear impact on the future, on the basis that such claims eventually will emerge and will be reported.
- The trending like methods of estimating future costs of health services by reviewing past trends in the utilization of these services and their costs.
- Risk adjustment, the commission calculate the approximate risk by methods of multiple variants.

The OECD et al., in the model for establishing *a system of health accounts* (2011) propose that beneficial characteristics of those who receive the health care, goods and services or benefit from those activities, is an important driving for taking into account in health care spends in the countries. They specify that "the beneficiaries can be categorized in many different ways, including age and

gender, socio-economic status, health status and location" (OECD, 2011). For our case, the Commission includes age, sex and geographical area as population characteristics into the PCU calculation. "Age and gender are probably the most established form of distributional or beneficiary expenditure ... [whose function is] to show the significant variations in spending that exist, and to permit adequate modeling of the impact of future changes in age structure." (2011).

In the other hand, the geographical area of the beneficiaries allows projecting the resources according with some specific risks.

The necessary information for the calculus comes from the information registered in 18 Databases of the Ministry of Social Protection and from the information year by year of insurance companies. The commission observed the cost for providing services in all the insurances companies -EPS- and the administrative cost for this, and also the age, sex and geographical area for adjusted the risk (Bolívar, Arcila, Alfonso, Córdoba, Hurtado, Torres, G., Torres, M., Montenegro & Ardila, 2008). With those elements the commission establishes the PCU value for each regimen. This value is the necessary premium for covering the cost of assurance, in this package for each insured the system pays the same value, but with differences between regimens. For the 2012, the PCU in the contributory

regimen was estimated in COP$ $547.639.20 (US$288,02 aprox.) and the PCU for subsidized regimen was COP $352.329.20 (US$185,43 aprox.) (CRES, 2011).

Even when the commission concludes that PCU is an important tool for reducing the risk selection in the insurances companies, it needs to become stronger with more elements of the health status of the population (Bolívar et al., 2008). It is important to reflect in the fact that in a context in which the corruption levels are so high, the process of establishing the PCU value can be contaminated for others interests non relate with the population welfare, and the information can be manipulated. About this, the Professor Hernández of Universidad Nacional of Colombia considers "for catching more profit, the insurance companies spend more money than necessary, for asking more finance resources to Government through elevation of PCU" (Revista Semana, 2011). Maybe it can help to explain that the UPC, according with empirical data, just represents around the 55 % of the health expenditure, still when the Ministry of Health consider it the cornerstone for making decisions in financing health. Here there is an important field for finding comprehensions and data that allow establishing the real impact of PCU as determinant of HCE.

3.2 The role of the recoveries

When the PCU is not enough for covering

the package, for different reasons and for different ways, the insurance companies charge to FOSyGA the cost of those situations; that is known as recoveries (from the Spanish *recobros*). Some years ago, in Colombia there was a big scandal related with those recoveries, because it was a way for embezzle to the FOSyGa (Revista Semana, 2011; Observatorio del Medicamento, 2010; Correa, 2008).

There were reports showing that the EPS charge medicines 50 % or 100 % over the real market value; in other cases, the insurance companies registered medicines of the POS as not-POS, other way to embezzle the system.

There is no formal information available about the impact of those recoveries to the system, and it could be to avoid evidence about it, but, since a critical perspective, this situation represents other important element in the determinant of health care expenditure field.

Reflections and conclusions

Unlike the OECD countries which the demographic drivers and the income elasticity are essential in the determinant of health care expenditure, Colombia relates the determinant of health care expenditure with the PCU value for each regimen and the recovery to FOSyGA. Aspects as the cost of the health package, the average premium, the recovery, the corruption, the low control by the government, are elements that play a role

in the determinant of health care expenditure in Colombia.

In spite of the PCU includes some demographical aspects, there is no evidence to show us if sex, age and geographical area are enough in the PCU calculus for representing the demographical drivers. The OECD paper shows us the importance of those elements in the health care expenditure, which it is worth bearing in mind.

Other forgotten element is the health status, besides the epidemiological profile is not taking into consideration and those aspects are not properly represented in the risk adjusted. Although the PCU includes the average cost of the POS, we know that here there is a political game, and we do not know if the POS represents the epidemiological situation of the country, and according with the indicators this situation is different between regions. It could be convenient to go from risk adjustment to epidemiological adjustment, in which the health status is represented. Coherence between epidemiologic situation and heath expenditure is an urgent analysis topic.

With the complex situation of poverty in the country it is impossible not to talk about the inequalities that the health care system promotes. If we compare the PCU value between the regimens, even with the effort for leveling, we can see that the regimen in which the poorest population is affiliated, namely, in the group in which the health risk and the

living condition are worse and therefore more need, the PCU is lower because the health services also are lower.

There are some gaps related with the accountability into the system, it is not clear the role of the government in the control of health care expenditure. Other gap is the impact of the new technology

into the PCU calculus, and it could be important to introduce some analysis elements related with this issue.

In spite of the gaps and the failures into the calculus of the PCU, we can consider it an interesting tool for improving and for assessing the health care expenditure in social security systems.

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