



THE HEALTHCARE PUBLIC SYSTEM – DOES STANDARDIZATION WITHHOLD THE BUCKET FROM LEAKING?

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Abstract:

The public healthcare system is heavily influenced by the 3C trilemma – cost – coverage – choice. The paper's argument tackles the fact that should the public decision on improving capacity be leaning towards universal coverage it would result in efficiency losses and, in an attempt to control the costs it would limit patients' choice. Should priority be given to performance or value? The present paper deals with the compromise between the equity and efficiency, a leaky bucket that becomes more visible in the struggle to build capacity and intervene in the market by setting standards. Setting healthcare standards is a global concern, the 3rd Sustainable Development Goal is a clear proof of that the aim to emphasise and better analyse two of the most influential variables: efficiency and equity. All in all, what we argue is that the current leaky bucket is a trade-off between choice, coverage, and cost. For a complex public service like healthcare, targeting a full coverage and multiple choice would incur huge costs and, cutting costs considerably restricts both the choice and coverage. The cost is influenced by the production capacity use when the activity has large fixed costs.

Key words: *healthcare, cost, public decision, standards*

1. Theoretical framework

The never-ending obsession with the trade-off between efficiency and equity pushes us to always go deeper into the economics of the public sector and prioritise different areas of decision-making and service provision and their specific tools.

The economy is a complex system that never reaches equilibrium and, moreover, is constantly influenced by different variables. The numerous decision-makers have access to limited information at high costs. The economy rarely achieves the optimum that other systems can due to the needs that lack homogeneity and the behaviours that cannot be controlled.

A previous research (Radulescu, Bitoiu, Bulgaru, 2015) argued that an important step in any attempt to build capacity to ensure resource use is to identify performance (efficiency, effectiveness, economy) and value (equity and ethics) barriers in the way of the decision-making specific to a certain public market. That research provided a framework for testing whether these highly impacting 5 Es can be better calibrated through the adverse method so to provide us with a better way of correcting the market failures.

When attempting to test such a framework on a public market, the choice of the case study becomes crucial as it must answer several needs: it must be a complex adaptive system, opened to applying the 5Es framework, strongly influenced by the cost-coverage-choice trilemma, and its market should be able to validate a state intervention for all types of market failures. Therefore, the authors chose the case of the healthcare sector, as it fulfils all the criteria and well known in the literature as the complex adaptive system (together with the education market).

The present paper deals with the compromise between the equity and efficiency, a leaky bucket that becomes more visible in the struggle to build capacity and intervene in the market by setting standards. Setting healthcare standards is a global concern, the 3rd Sustainable Development Goal (Ensure healthy lives and promote well-being for all at all ages) is a clear proof of that the aim to emphasise and better analyse two of the most influential variables: efficiency (which will influence costs, as Goal 3 actually refers to a need for Substantially increase health financing) and equity through regulations and actions like:

- Strengthen the **capacity** of all countries,
- By 2030, ensure universal **access** to certain health-care services,
- Achieve universal health **coverage**.

All in all, what we argue is that the current leaky bucket is a trade-off between choice, coverage, and cost. For a complex public service like healthcare, targeting a full coverage and multiple choice would incur huge costs and, cutting costs considerably restricts both the choice and coverage. The cost is influenced by the production capacity use when the activity has large fixed costs. Moreover, this sensitive sector also has social costs raised by the negative externalities (Dinu, Dumitrica, 2014).

Nevertheless, the public decision makers, when tackling the issue of how to provide healthcare, also take in to account the resource allocation (capital and labour). For example, a restrictive fiscal policy would impact labour which, for such a labour intensive industry, would definitely matter in terms of resource allocation. An improved efficiency would be directly dependent on estimating the marginal utility of healthcare.

In theory, the use of a public good such as healthcare would be possible as long as its marginal utility is higher than its price. The question pertaining to a fair estimation of health's utility has been receiving several different answers (Finkelstein et al., 2008; De Nardi et al., 2006; Hall and Jones, 2004).

2. Research methodology and hypotheses

The methodology we are using in this research is of a qualitative nature for both the theoretical background and the designed analysis framework. The first part also makes reference to a previous research much needed to substantiate the argument of the entire research, and the second part goes in-depth of the field literature to sketch the framework that is going to be tested afterwards. This is a work in progress.

The hypotheses tested by the entire research are as follows:

1. The capacity of the health service provider should be complex and / or multiple as it may be difficult to determine the cause and the effect between the activities and the outcomes that seek to influence.
2. The public health providers may face problems in identifying the cost of production and distribution.
3. The failure of information and incomplete market create even more complications in efficiency and equity measurement, through standards setting.

3. Two sides of the same story – efficiency and equity

The economies of scale derive from the capacity to better operate and produce more quantities. At the same time, the economies of scale could be reached by smaller increase in the overheads costs in comparison to the activities' growth.

Reaching economies of scale would be the ultimate step and building capacity to ensure the development of the healthcare services and improve the healthcare services provision. An intermediate and more urgent measure is to improve the degree of capacity use. If the economies of scale represent a more efficient activity, the reality is that increasing capacity usability could quickly be obtained by spreading the existing overhead expenses on a larger output.

The problem arises when the decision-makers are influenced by the false assumption that after the maximum degree of the existing capacity is reached, the costs will continue to decrease should the capacity be extended, like the rule of the economies of scale would suggest.

This belief is widely spread in the public decision-making system, so a better emphasis on the differences is called for. First of all, the economies of scale are

influenced by the sensitivity of the activity to the scale effect (it is important to underline that the overhead expenses are insensitive to the scale on which the services are operated. The number of the provided services (from which the consumer can choose) and the organisation of the service provision (impacting the coverage) are both important elements in determining the influences upon the economies of scale. The same on the importance scale are the spatial criteria based on which the services can be organised and which will trigger economies of scale, or the lines of products criteria that trigger diseconomies of scale. These criteria are set by the reforms that the government made regarding the healthcare services.

The reform measures were based on the ability of the local authorities to prioritize current spending by better managing investments, including by strengthening the public procurement system, and to attract into the system additional outside resources (SAR, 2010: 8), with an increased degree of efficiency in comparison to the former hospital management system.

Therefore, a mechanism to involve local authorities in all segments of the healthcare system has been created, with the exception of the emergency system because the emergency hospitals and institutes do not belong to this category of the decentralized hospitals.

The decentralized hospitals mainly receive financing from two distinct levels:

- From the National Social Health Insurance (from the citizens contributions' fund for health insurance), based on contracts between hospitals and CNASS for the payment of benefits on DRG (patients outsourced from these hospitals);
- From local government to cover certain expenses, mainly administrative, such as paying utilities, cleaning, security, ancillary considered services, which prior to decentralization were paid by the hospital from the money coming from CNASS.

Of course, the revenues of these hospitals also come from the State Budget for the resident physicians and various national programs such as the one for TB, but they also gather own resources (from some services which are paid) or donations and sponsorships.

By having certain ongoing operating costs subsidized by the local authorities, the hospitals can redirect their own revenues to buying drugs and sanitary materials, thus avoiding the lack of them in the care process.

These operating costs, namely the ratio between the fixed costs and the variable costs, can show us how sensitive is the activity to the capacity use.

Because of the funding method based on the number of personnel, the characteristics of the hospital and the "history" of its clinical ability, in that period, an integrated approach of the health care services was difficult to ensure in a certain "geographic cut": primary care, hospital services, long-term care services, home care, palliative medicine, prevention programs and, last but not least, the social services of the local authorities (SAR, 2010: 7).

So, what it goes into the leaky bucket is highly dependent upon many decision-makers and partners with multiple interests. The leaking fixed cost is impossible to control however the capacity is exploited, which leaves us with the brake down of the

variable costs based on four criteria pertaining to the complex healthcare distribution system:

1. How many units there should be?
2. How big are they supposed to be?
3. Where should they be located? (spatial criteria)
4. What specialisation should each branch have? (line of products/services criteria)

A previous analysis that even though the costs were high there was both poor coverage and choice (see *Appendix 1*). This cost was influenced by the capacity use when the activity reported high fixed costs. It must be noted that under the current conditions of the private competition flooding the healthcare market the public decision-maker should consider the pattern of the capacity use on the entire usage cycle, which is also determined by the investment behaviour of the competition. This emphasis is important to be outlined as the current cost indicators (CNAS, MCS, 2014) that take into account the capacity use are based on different fluctuations and changes in the demand and supply, independent of the competition.

4. The story's climax

The way the two variables tackling efficiency and equity are integrated takes into account Porter's five forces model and the work the author further developed this analysis to better underline the need of the public health sector to focus on value creation based on competition (Porter and Teisberg, 2006).

The analysis follows the *leaky bucket* analogy, as it is absolutely necessary to have a general view upon the loss of efficiency when gathering resources and the equitable distribution of services.

The authors' constant interest for developing instruments that are able to better emphasize the results of the public market, be them in terms of decisions or production, aiming in the end at efficiency, led them to mould certain private market mechanisms to the public market realm. One such model, entitled PDP (Porter's Public Decision) adapts Michael E. Porter's Five Forces Model, an analysis framework used by companies that are looking to penetrate a new market and want to cover the risks of such an adventure, through a deep knowledge of the business environment and, consequently, of the decision type that needs to be taken. (Dinu, 2007: 166). The idea is to develop a decisional map based on the accurate assessment of the public market forces: the threat of alternatives (TA), bargaining power of citizens (BPC), bargaining power of suppliers (BPS), barriers to entry (BE), and rivalry (R).

One important force on the public market is the threat of alternative products and services. Should the type of the public goods and services be taken into account – rivalrous/non-rivalrous, excludable/non-excludable – the TA force can vary from

weak to strong. In the case of the healthcare, with a non-rivalrous consumption (i.e. can be consumed without affecting the quantity available for another consumer), but, at the same time, with a non-excludable consumption for the medical emergencies (see Appendix 1) can trigger an incentive not to pay for what is provided. Therefore, the power of consumer force becomes stronger.

Nevertheless, there is the power of supplier, that lies within the fact that healthcare is still an economic one, scarce and desirable, and these features assures it the power of attracting payment in return for its use or consumption (Dumitrica et al., 2016: 45).

Another important force refers to the barriers to entry, a force that is strongly influenced by the way the healthcare system is organised and the decisions are taken. Appendix 1 presents the way the system follows the decentralization road. A decentralised healthcare system relies on cooperation. If this cooperation is not stimulated, the healthcare system can be damaged (Dinu, 2007: 167). A decentralised healthcare system would appear as the ideal solution, but the government could find itself in a situation of decision making impossibility when these sub systems fail to cooperate (market failure) (Dumitrica et al., 2016: 46).

All in all, all these four forces push towards a constantly changing hierarchy of satisfied needs. This particular market force is referred to as rivalry, giving that the decision maker needs to find the optimum resource allocation so to satisfy the public needs that are unlimited and different from one social category to another. The decisions aiming at establishing this hierarchy should take into account both the efficiency and the equity necessary when providing the public goods and services.

5. Further research and Results Validation

The proposed adapted framework is currently being tested and it will follow three stages:

- (1) Establishing the unit of analysis (based on the gathered data);
- (2) Selecting the indicators used to better grasp the efficiency and equity of healthcare service provision;
- (3) Making a comparative analysis between services provided in different areas.

As shown in Appendix 1, the fact that there is a large percentage of admissions listed as medical emergencies even though the ASSMB hospitals do not have the status of emergency hospitals proves one again the need to investigate why do patients rather use a local administration hospital instead of a central administration one that actually has the emergency status. Should the hospitals of the local administration still keep on having on average a percentage of 35 of admissions that are medical emergencies would only make the bucket leak more. Is the local system more attractive due to its lax operation system or is it a matter of preference that keeps the patients from using the units with emergency status of the central administration?

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Appendix 1

The case of the City of Bucharest

Bucharest City Municipality was the first local public entity who understood the importance of getting involved in a pilot decentralization process of hospitals to offset the negative effects felt by its citizens as a result of the health system under-funding operated by the central government.

For ensuring a proper funding and managerial coordination of the hospitals from the local authority level, the Bucharest Hospitals and Medical Services Administration (ASSMB) was created through HCGMB 378/09.12.2008 in 2008. The measure was taken to ensure a local responsibility of the public administration authority for the direct and immediate retrieval of the funds spent on medical and paramedical service quality for the patient.

The Bucharest Hospitals and Medical Services Administration owns hospitals with different but complementary medical specialties and also includes the coordination of an ambulatory network which involves: medicine in schools, including those dedicated to students and kindergartens, paediatric cabinets, dentistry, general medicine and first aid points and community medical assistance.

The Municipality took over in 2009, from the Ministry of Health, through ASSMB, 18 hospitals initially, then another three in 2010, having in 2012 only 19 hospitals since two of the hospitals were abolished by Government Decision. Most of these 19 hospitals are “university clinics” except five hospitals.

The pilot decentralization process of hospitals in Bucharest became operational in April 2009 when the protocols to take over the health units were signed.

Regarding the mechanism for funding these hospitals, they still receive money from the contract with CNASS for the patients they treat, but because they cannot cover all the necessary money for medicines and consumables, these expenses were taken over by the Bucharest Municipality and thus the provision of quality services for citizens is ensured without the citizens having to purchase their necessary medication treatments.

In the first two years after taking over the first 18 hospitals from the Ministry of Health, the municipality primary objective was to bring the units in the third millennium by modernizing their equipment and the rehabilitation of the accommodation and operational areas.

Currently, the Capital health services (for a population of approximately 2 million inhabitants according to the estimates of the Statistics National Institute) are provided through the 19 hospitals and the related clinics, but also through the school network of 581 medical offices. The 19 hospitals have a total of 8,500 approved positions, of which 6,863 are occupied (Mayor’s report, 2014: 242).

For the direct payment of municipal public services dedicated to supporting the citizens’ health by subsidizing hospitals taken over from the Ministry of Health, during the period 2008-2015, the total financial resources of taxpayers were spent as follows:

Table 1. The evolution of expenditures for subsidizing the hospitals taken over from the Ministry of Health during 2009-2015

Year	Total spending (million LEI), out of which:	Health (expenditures for decentralized hospitals) Note: 2008-2009 - 18 hospitals; 2010-2011 - 21 hospitals, 2012-present -19 hospitals.
2008	3434.7	389.9 (11.35%)
2009	4345.00	180.31 (4.15%)
2010	4789.97	198.75 (4.27%)
2011	4108.20	192.32 (4.68%)
2012	3932.67	142.69 (3.63%)
2013	3815.41	141.38 (3.71%)
2014	3990.95	189.83 (4.76%)
2015	4060.90	182.71 (4.50%)

Source: The Bucharest Mayor's Reports for 2008-2015

There are important comments that we consider important for the argument of this research, regarding the evolution of these expenditures registered by the city of Bucharest.

A first year for reporting is the year 2010, when the municipality has carried out major expenditures for compensating the financial resources' gap and the debt inherited when the hospitals were taken over, and for the functional improvements of some hospitals that were taken over and minimally equipped, as the first phase of a program for the multi-annually modernization and restructuring of the municipal health sector (Mayor's Report, 2010: 196).

Earlier this year the expenses necessary for the financial support of the 21 hospitals, like other municipal expenses have been greatly influenced by the increase in VAT from 19 to 24 per cent in 2010. Despite all these fiscal challenges and especially in the context of the increased addressability and patient access to hospital services, at the end of 2010, 18 of the 21 hospitals had no arrears and for the other three the amounts were insignificant.

During 2009-2012 the municipality continued to allocate significant amounts to the investments' and administrative expenses' chapter, and in 2012 more than half of those hospitals were classified as the best performing and well-equipped hospitals in Romania, although the budget allocated for the 19 hospitals in 2012 was 25 per cent lower than in 2009, 2010 and 2011.

In total, the municipality spent in these medical facilities 179 million euros for the period 2008-2013, and the year 2014 can be considered revolutionary for the municipal health system, with extensive constructions, medical and surgical oncology development in all hospitals, even without having had this profile, opening new sections and diversify specializations (Mayor's Report, 2010: 196).

In terms of increasing the addressability and patients' access to medical services, in the ASSMB hospitals were hospitalized until 2014 about one million people, with an average of 250,000 per year in the system of continuous hospitalization and more than 2.5 million treated in ambulatory or one-day hospitalization (Report ASSMB, 2012: 2).

Even if the ASSMB hospitals do not have the status of emergency hospitals, there is still on average a percentage of 35 of admissions that are medical emergencies. Five of the ASSMB hospitals (Hospital Gomoiu, Foisor, St. Luca, Obregia, and Victor Babes) were included in European projects that enable the health units to develop according to the European requirements.

The hospitals' financing from ASSMB from the local budget during 2009-2015 was of 916,840,280 lei, and for the projects with financing from non-reimbursable external funds for the same period it was in the total amount of 116,023,757 lei. In 2015 the budget execution was of 102,758,269 lei. The ASSMB allocates one sixth of the total funds used by hospitals, plus the amounts from the co-financing of the European programs currently in progress (Mayor's report, 2015: 351).