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A PLANNING AND CONTROL SYSTEM BASED ON SOCIAL WELFARE INDICATORS USEFUL WAY TO GUIDE THE GOVERNANCE FOR SUSTAINABLE HEALTHCARE MOBILITY

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ABSTRACT

New Public Management has changed the way we perceive and at the same time govern public health companies. In a period of economic crisis and reduction of available resources, the new objective is to identify new indicators, including non-financial ones, to plan resource allocation and production choices. The applied method is quantitative subjective, the theory is demonstrated through the focus of a theoretical assumptions. The carried-out elaboration, after having identified the variables considered and the possible mathematical relationship between variables (for example a synthetic index of mobility), defines the relationship between them through linear regression and through a multivariate statistical analysis. All statistical analyses were performed using STATA and p value <0.05 was considered significant for all analyses. The choice of mobility for acute performance in the ordinary regime between regions in Italy is used as case study. Stakeholders could be influenced by non-economic and non-subjective information such as social indicators, by objective indicators such as the achievement of minimum levels of assistance in each region or some objective BES indicators. A positive correlation is observed between the synthetic mobility index and the perception of health. Furthermore, the synthetic mobility index decreases with the difficulty of access to services. The economic factor GDP per capita continues to influence both social indicators and the achievement of minimum levels of service. The challenge of the new millennium is the identification of non-economic indicators useful to support the classic economic indicators that are not always representative of the real welfare of the population.

Keywords: NPM, healthcare mobility index, social index, healthcare production choice, healthcare governance choice, information, acute ordinary regime, LEA, GDP, sustainability.

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INTRODUCTION

Theoretical Background

The company is a man-to-man instrument (Ferrero, 1968). Public companies use public resources to provide goods and services to citizens in order to answer to an anthropological need (Puddu, 2001). Accounting, needs and responsibility are closely linked to ethics (Grbac & Lončarić, 2009). The corporatization of public bodies is part of a process launched in Europe between the 80s and 90s aimed at answering to the new requirements of public spending's rationalisation. This process is identified in literature as New Public Management (NPM) and corresponds to the collection of management and leadership practices gradually introduced in the public sector. NPM is a generic term for a variety of management ideas, often borrowed from the private sector, which introduce ideas and tools such as competition, privatization, management by objectives, decentralization, etc. in the public sector (Hood, 1991, 1995). The NPM movement has its origins in a critique of the traditional way of exercising control and management of public organizations as a requirement for greater efficiency in the public sector. Using the tools developed in the private sector to manage public affairs is possible through the implementation of a communication path aimed at all stakeholders and, in particular, at citizenship. In the public sector, information and communication are made possible through reporting and budgeting tools (Biancone et al., 2016). An organization can have many stakeholders and, consequently, a wide range of actual or potential users of financial reporting. The approach to stakeholders spread in the 80s considers the corporate choices not only aimed at maximizing shareholders, but also for the maximum benefit of the community, not only economic, but for all those who have a relationship with the company. Stakeholders are defined, in the first definition, as groups which would cease to exist without the organization (Freeman & Reed, 1983). In the public shareholder and specifically in health companies, the citizen is the subject interested in reaching and satisfying the needs. The involvement of all the stakeholders must create a mapping of the interested parts, the top management in the company governance is required to involve both the passive and the active stakeholders in the decisions (Freeman et al., 2007). The theory based on the rights of the different stakeholders focuses attention on all those groups that might have an interest in the provision of the service (Mitchel et al., 1997). The main users of the health service are citizens, who in a new perspective of public companies answer to the need by providing useful and essential information for the production, becoming themselves producers of the service. Co-production does not simply involve bilateral relations, there are multiple relationships between health service customers and other stakeholders. In the health service, Hyde and Davies (2004) found a complex interaction between organizational design and customer interactions that co-produces care through a series of relationships. Co-production by users and communities has provided an important

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integration mechanism, bringing together a wide variety of stakeholders in the public interest, frequently ignored and usually underestimated in its potential to increase the effectiveness of service delivery policies. This framework suggests the need to recontextualize the provision of services as a process of social construction in which the actors of self-organizing systems negotiate rules, norms and institutional frameworks rather than taking the rules of the game as given (Bovaird, 2007). In company planning, access to information by the user could be a key element for the definition of the financing of services and the level of output of the company. Eysenbach and Jadad (2001) hypothesize that decisions and care choices are possible for patients through the use of the Internet, obtaining clinical information on performance and online results is seen as sufficient factor to guide the choice with respect to the doctor or to the most appropriate medicines, however, there is no evidence on the actual choice of the patient with respect to the progress of the health system. Other authors have shown that the availability of information is not sufficient to guide the choice and that there is an information asymmetry between the information that the user has and the choice of treatment (Bloom et al., 2008). The citizen often approaches public management only when needed and is not really aware of all the services provided, of the quality of services and of the capacity of the health service to answer to the need in each region (Pica and Villani, 2010). The theory linked to the type of information useful to guide the planning of the health care company has not yet fully analysed how much information and indicators available to the main stakeholders can affect the service and the choices of production and company governance.

Research question

The conducted analysis aims to demonstrate that social indicators and levels of achievement of business results are related to the choice of consumer care, and whether the choice is also related to the overall perception attributable to each Italian region. Normally the choice of governance of service delivery according to need is based on the collection of health needs. It is assessed whether the allocation of resources based on citizens' perception is possible thanks to social indicators. Paying attention in parallel to the satisfaction of the citizen and the ability of the health company to answer to the need. The essential level of provision of benefits should affect the choice of mobility of the citizen and should no longer be connected to the per capita availability of GDP (gross domestic product) in each region. It is discussed whether the economic perspective is now far from the true satisfaction of the needs and choices of the citizen, or if availability remains an important indicator that directs the choice of active mobility among regions, thus providing a indicator flooded of satisfaction.

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MATERIALS AND METHOD

Method

The conducted analysis is quantitative subjective, the theory is demonstrated through the focus of a real case in order to increase the understanding of theoretical assumptions (Burrell, and Morgan, 1979). The carried-out elaboration, after having identified the variables considered and the possible mathematical relationship between variables (for example a synthetic index of mobility), defines the relationship between them through linear regression and through a multivariate statistical analysis. All analyses were verified with a robustness test that confirms the significance of the relationships. All statistical analyses were performed using STATA V.13 (Stata Corp, College Station, Texas, USA, 2013) and p value <0.05 was considered significant for all analyses. The case study takes into account data on regional mobility in Italy in 2014, 2015, 2016, the welfare indicators of the "BES" project for the years 2015, 2016, 2017, data provided by the ISTAT platform "Health for all" on economic variables (GDP), population and mortality index, and finally the LEA indicators defined by the Ministry of Health of Italy for 2014 and 2015.

Used variables

Accountability and sustainability through social indicators

In recent years, scholars and operators compare the different health systems, paying attention to increasing national and regional needs. In particular, a debate has developed around the technical efficiency of health policies, understood as the ability of public policies to pursue quality health performance by making best use of available resources (Retzlaff-Roberts et al., 2004). With the economic crisis of 2008, the descriptive and interpretative efforts of the various health systems increased dramatically, also in comparative terms (Levy and Sobolev, 2016). The scarcity of available resources and the consequent cuts in public spending, indeed, have raised the question of the model and type of health, in the legitimate attempt to identify the institutional structures and production solutions comparatively more efficient than the others, also in relation to the system outcomes. For a couple of decades, economists, sociologists and psychologists have been working together to develop indexes that reflect quality of life developments better than GDP statistics. "Happiness formulas" were also invented by combining various criteria of welfare measurement with measures of subjective perception of individuals about their situation. During this period there has been much theoretical concern for the study of the competitiveness exercised by experts and international bodies by experts from the academic sector and consulting businesses. Most of these studies describe the main determinants of economic performance on competitiveness and the interdependence between a country's current socio-economic development and its potential growth. Gross domestic product is the most widely used indicator in the measure of economic activity, but has numerous flaws. It is able

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to measure only market production, without recourse to market prices, and does not take into account consumer surplus or produced externalities. The current recession did not happen because we could not follow the kind of advice given by this Commission; the current recession took place for a cyclical process that is part of the nature of the economic system (Leunig, 2011). The European Observatory on health systems and policies has published studies that are more complete and methodologically based on comparative analysis, both on the functioning of health systems and on the reforms and political initiatives started or under way in the European countries belonging to the World Health Organization. For its part, in 2008, the Organization for Economic Cooperation and Development (OECD) promoted a sciential survey on governance systems and decision-making, responsibilities and financial resources available in the various OECD countries. (Paris et al., 2010). It is also to be considered that the creation of too many indexes by the created commission could make the relationship not interpretable and not general, returning the role of main indicator of comparison to GDP. The Commission's report on the measurement of economic performance and social progress is vaguely interesting, but offers little in terms of historical economic value. It does not give alternatives over time as the different companies have implemented the shares based on the different indexes. It is estimated that, taken as a whole, changes in per capita GDP may overestimate or underestimate economic performance and social progress, or that this measure is more or less accurate for different countries or for different periods of time. Indicators and composite indexes are increasingly recognized as useful tools for policies because they bring information about a country's performance (Landry et al., 1999). The main advantage of an indicator is its ability to synthesize complex information from our dynamic world into a manageable amount of meaningful information. Some scholars claim that there are no ideal planning tools to achieve sustainability either on a regional or local scale (Keiner, 2006). Recently, politicians have begun to encourage scientists to improve models and develop new techniques to integrate quantitative and qualitative analysis for local and regional planning of sustainable development (Grosskurth and Rotmans, 2007). In particular, the correct choice of indicators is essential to monitor progress towards sustainable territorial development. Accountability is one of the results of NPM and involves those who perform a function of planning, management or control, as a responsible subject towards those who accept the effects of the exercise of these functions (Ricci, 2005). NPM and New Public Management increasingly increase the need for transparency, the citizen wants to know and wants to decide services, but in the health sector is not sure whether he/she is able to perceive and choose on the basis of the information at his/her disposal. With reference to a territory, if it is reported, it is because there are subjects to whom account must be given and, at the same time, there are some subjects who feel the need and the responsibility to report on the actions taken. The social responsibility of the territory is an approach to development that is

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being imposed in the search for sustainable models on a global scale. The social sphere is at the centre in its widest and most complete meaning, including and exceeding the economic categories and the needs of profit.

Bes and social indicators

BES is the project to measure fair and sustainable wellness, is part of the international debate on overcoming the GDP, fuelled by the awareness that the parameters on which to evaluate the progress of a company cannot be exclusively economic, but must also take into account the fundamental social and environmental dimensions of well-being, accompanied by measures of inequality and sustainability. The document was presented in its fifth edition on December 15th 2017. BES (Fair and Sustainable Wellness) is based largely on the OECD framework. It represents a demanding challenge in this document because it seeks to integrate wellness with equity and sustainability. This involves significant theoretical problems that need to be clarified and resolved before the technical methodological discussion can be started on how to measure the dimensions present in the various domains. Bes is a process that takes the multidimensionality of wellness as a starting point and, through the analysis of a large number of indicators, describes all the aspects that contribute to the quality of life of citizens. In this context, official statistics must keep up with the growing demand for statistical information of quality. It is then up to citizens and their representatives to choose which dimensions of wellness are able to return more value and on which it is opportune to invest, with the awareness that the achievement of some objectives could compromise or delay the achievement of others. Bes can also assist the public administration in the decision-making process and at the same time provide the citizen with information that guarantees transparency and a reading key also linked to the services that the company offers. It is important the influence that the community and the level of public acceptance have on social indicators and therefore on the possibility of using them for comparison (Jones et al., 2012, Gutierrez et al., 2011). The functions of the public company can therefore be representative on an aggregated level both in quantitative and qualitative terms of achievement of the programmed results, and through a comparison and a key of interpretation as regional statistical indicators of reference on specific activities. In a complex system it is necessary to look for common reading keys and broad indicators that allow to understand the work of Governance, Culture and the Economy of a territory. In our analysis it is possible to consider the 2015 health compound indicator as an effect of the 2014 financial year to assess the perception of health, the same indicator is also present for the year 2016 as an effect of the perception of 2015 while it is not possible comparison with the third year of 2017 as ISTAT preferred not to make this indicator more explicit as a reference to the health perception trend, replacing it with a series of objective measurement indicators. Among the indicators used to evaluate the perception of the different regions also the

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composite of education and training, the composite of income and social inequality, the composite of unease, the composite on social relations, the trust in other types of institutions (territorial health and public bodies), the rate of innovation and product of the service on the productive system and the difficulty of access to some services. In 2017 the composite indicators are reduced not allowing an appropriate comparison, although the analysis is still conducted, it is also reported that some indicators are replaced by others. The social indicators BES are both objective and subjective type, the first is based on the objective quantitative evaluation with a ratio between quantitative factors, the second is qualitative based on survey, in this case it is a question of non-objective variables but represent the evaluation of users. Both in 2014 and 2015, the number of residents and per capita GDP can be assessed. In the two years through another ISTAT project called "Health for all Italy", database of indicators on the health and health system in Italy, structured in such a way as to be interrogated by the HFA software provided by the World Health Organization adapted to national needs, it is also possible to evaluate the mortality indicator as an objective indicator of evaluation of health services for each region. The data for 2017, unfortunately, both on the per capita GDP per region and as regards the mortality rate are not yet available, therefore only the data useful for the analysis are represented. The indicators and data available for each year can be identified in Table 1, Table 2 and Table 3 for quick representation and are made up of observable objective variables and subjective variables based on the perception of residents as the perception of wellness (health). The empty boxes in the tables represent the missing data for the BES indicators or not yet available for the other values because not processed by the national statistical service. The indicators and tools used are placed in the international discussion thanks to projects of assessment of governance, accountability and perception by similar stakeholders such as the use of indicators to assess the perception of health, mortality, wealth of families, indicator composed of quality of the service provided in the OECD countries (Biancone et al., 2018). Access to the tables (*Table 1: Mobility and variables for 2014;Table 2: Mobility and variables year 2015; Table 3: Mobility and variables for 2016*) is possible online through the link: https://drive.google.com/drive/folders/14L5J5FlMX9hvqg5DNiRKFoa9X1-yFvNh?usp=sharing The choice was made to facilitate the analysis, the tables occupy more than one page. the tables are present in the appendix.

Planning and health systems and Lea

Healthcare funding policy is an integral part of efforts to move to UHC (universal health coverage), but to align health financing policy with UHC prosecution, health care reforms need to be explicitly targeted to improve coverage and the intermediate objectives related to it, that is, efficiency, fairness in the distribution of health resources and transparency and accountability. The unit of analysis by objectives and the objective itself must be the population and the health system as a whole. What

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matters is not the way in which a particular funding scheme affects its individual members, but rather how it influences progress towards UHC at the population level. The systematic approach goes through the System expressed in Figure 1 (World Health Organization, 2010), where the objectives expressed influence the planning, programming and control starting from the consideration of need, efficiency, quality, transparency and accountability. All the elements expressed in the graph are considered in the management and preparation of the funding and in the control of production business flows. The key performance indicators represent the achievement of results in healthcare companies and are configurable as the capacity and the level of answer to a need.

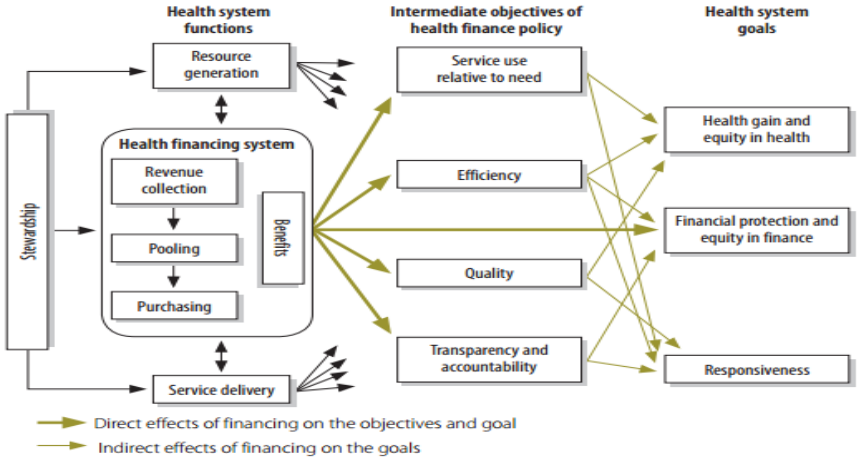

Figure-1. Health system goals and health financing policy objectives (Kutzin, 2008)

In Italy, the complex system of financing health services depends partly on the funding provided by the National Health Fund and partly on regional own revenues. Funding based on per capita share, based on inhabitants, must ensure a balance between available resources and the provision of adequate health services through the essential levels of assistance (LEA) (Costa, 2010). The Regions, as they have done up to now, will be able to guarantee additional services and services compared to those included in the LEAs, using their own resources. LEAs are at the basis of current health planning in Italy and are grouped into three major levels: collective prevention and public health, district assistance and hospital assistance. The certification of fulfilments takes place through the documentation specifically required to the regions through a questionnaire and an analysis of the same integrated with information already available at the Ministry of Health. Certification is carried out by the members of the LEA Committee which also establish compliance and criteria for assessing the fulfilment or non-fulfilment of the regions. The preliminary work is conducted by the offices of the Ministry responsible for matters of compliance, examined and validated by the members of the LEA Committee. An interactive comparison with the regional representatives is foreseen. Specifically, the certification of the fulfilment of the "maintenance in the provision of LEAs" area occurs through the use of a defined set of indicators divided between the three large levels. The regions are placed in the

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compliance class if the score obtained is ≥ 160 or between 140 - 160 and no critical indicator while it will be placed in the default class if the score obtained is <140 or between 140 - 160 with at least one critical indicator. In our analysis we will not give evidence of the criticality of each region, but we will use Lea as a representative indicator of objective quality of performance of each region in relation to other variables, evaluating the relationship and the trend. It is possible to evaluate for 2014 and 2015 only the Leas of the Italian regions with ordinary statute.

Inter-regional health mobility and its financial implications

Healthcare planning must take into account the effectiveness of the service and the implications produced on the LEA, in terms of governance and accountability, health mobility is a phenomenon that must be taken into account. Health migration is the movement of patients from the regional territories of residence to other areas considered more equipped from the diagnostic and therapeutic point of view, in order to obtain better assistance. The phenomenon of health mobility is present not only in Italy but also in other countries of the European community and the United States of America. The principle of free choice, by patients, of the place where receiving care to which they are entitled has transformed since 1992 the Italian Health System. The topic concerns both the management of the services in the Health Authorities and those involved in planning at the level of local authorities and, therefore, it needs to obtain adequate information on the level of needs to be met and on accessibility to local public services. Moreover, the transfers of the assisted people among the health services structures of the Regions imply the need to regulate the debit and credit positions with respect to the rates in force for each service. The National Healthcare Fund, which distributes on a share capital, defines through the Ministry of Health the services to be taken into consideration, the characteristics of the information flows (tracked records), the times and methods of data transmission, the system to check the charges transmitted, the procedures for contestation and those provided for the initiation of counter-deductions. The classification of the services is currently carried out by means of the International Classification of Diseases system, in order to standardize the Grouped CMS ICD-9-CM classification system. For the proposed analysis, the information obtained from the SDO database was used, i.e. the national database on hospital admissions, set up at the Ministry of Health and freely available online, which includes information on all admissions. registered in Italy since 1996. Both in table 1 and in table 2 and table 3 it is possible to deepen the analysis by studying the escape and attraction indexes of the individual regions. The proposed method is applicable internationally. The national average value can be assumed as a reference value to evaluate the trend. The synthetic mobility index (ISM) can be calculated as the ratio between the attraction index and the escape index. The ISM always assumes values greater than or equal to zero. It is zero when the attraction is null, that is when in the considered catchment area no non-resident admissions were made. Values between 0

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and 1 indicate inter-regional immigration lower than emigration. Values greater than 1 are when the incoming flows exceed the output flows. On an exemplary level, for numerical significance the values that represent the mobility for the acute in the ordinary regime were observed. The synthetic mobility index will be one of the variables used to evaluate the choice of the citizen and the relationship with other regional, economic and qualitative variables of respect for the essential assistance levels.

STATISTICAL ANALYSIS RESULTS

For both the year 2014 and 2015 the combined health index and the relative perception of health in each region increases as the per capita GDP increases, the dependency variable is the health compound index (2014 standard) error = 1,332, p value <0.001 and R2 = 0.7735, year 2015 standard error = 1.709, p value <0.001, R2 = 0.6626). For both 2014 and 2015 the synthetic mobility index decreases with the difficulty of access to services, the dependent variable is the synthetic mobility index (2014 standard error = 0.456, p value = 0.011 and R2 = 0.307; 2015 standard error = 0.0500, p value = 0.014, R2 = 0.2903). In 2014 and 2015 the compound health index, and the relative health perception increases with the rise in the number of LEA reached in each region, the health compound index is the dependent variable (year 2014 standard error = 0.051, p value <0.001 and R2 = 0.714; 2015 standard error = 0.0366, p value <0.001, R2 = 0.778). For both 2014 and 2015 there is a positive correlation between the synthetic mobility index and the perception of health, the synthetic mobility index is the dependent variable (2014 standard error = 0.014, p value = 0.001 and R2 = 0.439, 2015 standard error = 0.014, p value = 0.005, R2 = 0.358). For both 2014 and 2015, the LEAs achieved in each region increase as the per capita GDP increases, the Lea are the dependent variable (2014 standard error = 6.142, p value = 0.001 and R2 = 0.558; 2015 standard error = 6.609, p value <0.001, R2 = 0.664). For both 2014, 2015 and 2016, there is no correlation between mobility and the overall perception of each region using the different composite indicators available as independent variables with respect to the dependent variable mobility (p> 0.05). There is no correlation between mortality indicator and health perception, just as there is no correlation between perceived quality, quality perception and achievement of LEA.

DISCUSSION

The Italian state as well as other countries has been engaged for a long time in the definition of a series of social indicators aimed at measuring the perception and satisfaction of the needs of citizens. The post-industrial 21st-century perspective focuses on the assessment of well-being aimed at answering to needs, rather than focusing on level and production growth. From 1960 to today several studies have been done on the subject. In particular, we start from the analysis of Land (2012), Glatzer et al.

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(2015) by Hagerty and Land (2001), Volger (1999) and Cramm et al. (2012) and finally by Andrews et al. (2015). In Italy the introduction of BES project: the fair and sustainable well-being that has taken place since 2014 by ISTAT CNEL and ISTAT guarantees some reference indicators at national level. The indicators provided in Bes report aim to make the country more aware of its strengths and difficulties to overcome in order to improve the quality of life of its citizens, placing this concept at the base of public policies and individual choices (Biancone et al., 2017). In Italy the Ministry of Health has defined an Essential Assistance Level (LEA) that represents the provisions and services that the National Health Service (NHS) is required to provide to all citizens, free of charge or upon payment of a participation fee (ticket), with public resources collected through general taxation (taxes) and which can represent the capacity of each region to answer to the needs of the resident population (Brescia et al., 2017). Planning and programming the expenditure and the volume of services to be provided is not easy in a system where the economic crisis reduces the available resources. The obtained results show that various information could direct and influence the choices of the stakeholders, affecting the governance choices of the healthcare companies. The corporate social responsibility and accountability provide as a priority element the involvement of stakeholders and in particular in the public community and citizens (Jones et al., 2007; Mohammed, 2013). The economic evaluation has not yet been completely overcome as this could still influence the other variables at stake. The social indicators associated with objective indicators of achievement of minimum performance and GDP trends are all elements to be taken into consideration. The population from the first statistical analyses could be affected by the per capita GDP available in the perception of overall health, but it seems to be aware of the real performance of the number of essential services provided (LEA) during health mobility choices for acute performance in ordinary regime. Just as in the attractiveness given by each region in tourism companies, even in helthcare mobility, GDP influences the choice with a direct impact on perception and relapse (Alonso-Almeida et al., 2016), but it is always necessary to consider several indirect variables, identifying the most appropriate analysis mediators. The degree of satisfaction as in private companies is also important in public companies but should not be used alone to read the results, but must always be associated with objective indicators. The monitoring of access to public services and the collection of information is necessary in real time to obtain results that are always up to date and ready to direct choices. It has been shown that the exchange of information also on the quality of services helps both to change perceptions and to increase the reading capacity of stakeholders end politicians (Glatzer, 2015; Kundu & Datta, 2015; AL Athmay et al., 2016). Furthermore, it seems to be able to direct the choice of active mobility on the basis of the ease of access to public administration services without taking into account the trend and the general perception given by the regional indicators of the different regions. The use of information and

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communication technologies in the healthcare sector offers great potential, but many data and indicators have not yet been fully used and put into the system (Aggelidis & Chatzoglou, 2008). The aging of the global population and the reduction of available resources requires public health to better orientate intervention choices and resources according to the needs of each region to increase the sustainable use of resources (Adderley & Mellor, 2014).

CONCLUSIONS

A planning and control system based on social welfare indicators, associated with the economic performance represented by per capita GDP and the level of essential services provided could be useful indicators to guide the governance of the health system and at the same time, which information is useful to meet the needs of NPM represented by a growing need for transparency and accountability of the population and other stakeholders. The challenge of the new millennium is the identification of non-financial indicators useful to support the classic financial indicators that are not always representative of the real welfare of the population, and not always easy to understand for everyone. The diffusion of all indicators that are easy to understand could allow greater perception by orienting choices and reducing the information asymmetry that is often present between the consumer and the public company.

STRENGTHS AND LIMITATIONS OF THE CURRENT STUDY

The study is innovative and no similar studies have been conducted. The use of non-financial information is suggested by the European community to better involve all stakeholders, Directive 2014/95 / EU (EU, 2014). The possible limitation of the proposed model is given by the obsolescence of data at the time of use by politicians and legislators. The study is conducted on Italian indicators, it is important the reproduction and analysis in other countries in which financial, non-financial and social indicators have already been developed.

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APPENDIX

Table 1: Mobility and variables for 2014

Abruzzo	Lazio	Marche	Umbria	Tuscany	Emilia-Romagna	Liguria	Venezia	Veneto	Alto	Lombardy	Valle d'Aosta	Piedmont	Regions
102	101.2	102.2	105.5	109.3	109.7	110.4	109.2	106.8	113.3	110.7	106.7	104.8	BES health compound index
112.4	110.9	111.1	118.4	111.1	108.2	113.7	119.1	108.7	125.2	108.7	108.4	109	Composite education and training
89.7	90.6	97.9	97.8	98.8	103.3	98.6	103.5	105.6	106.3	104.6	105.1	98.4	Composite of work quality and job satisfaction
95.4	95.9	104.7	100.9	108.8	111.2	105.7	111.4	108.6	113.6	111.4	113.8	108.1	Composite income and inequality
93	99.4	90.4	98.6	101.8	103.9	96.6	106.4	107.2	107.3	102.1	99.5	106.2	Composite unease
94.4	99.7	97.8	99.9	106.2	110.2	100.8	108.4	106.2	120.9	105.3	104.8	105.7	Composite social relations
3.4	3.6	3.5	3.6	4.3	4.2	4.1	4.5	3.8	4.9	3.9	4	3.8	Trust in institutions
111.4	97.6	99.4	57.3	105.6	116.9	104.8	91.4	115	117.3	104	117.3	105.2	Composite security
89.3	88.7	89.6	92.7	87.9	95.6	94.5	99.1	95.1	109.9	97.5	104.1	95.2	Satisfaction for own standardized life
91	94	100.9	103.9	102.7	101.8	95.5	104	91.9	119	102.7	97.4	100.6	Composite landscape and cultural heritage
113.9	100.8	98.1	102.9	101.5	102.6	103.8	105.9	106.9	112.7	103.9	116.5	105.5	Composite environment
15.1	18.6	13	19.1	22.8	21.5	16.1	23.4	27.7	19.5	22.4	10.1	20.7	Service product innovation rate on the production system
6.1	7.1	6.1	4.7	5.2	6.2	6.1	5.2	5.6	4.4	3.2	4	4.5	Difficulty of access to some services
31034	181778	39862	20656	108678	146787	47550	35462	149888	39460	353955	4394	125643	GDP 2014
1332757	5881438	1551967	895752	3751583	4448431	1587601	1228243	4927207	1053943	9988006	128445	4430633	Number of residents
2.33	3.09	2.57	2.31	2.9	3.3	3	2.89	3.04	3.74	3.54	3.42	2.84	Per capita GDP
9.68	7.86	9.03	10.12	8.42	7.79	8.71	9.69	7.77	7.13	6.97	8.56	8.69	% of health expenditure compared to GDP
14407	45489	18366	17782	47658	75671	15822	11509	33748	4322	103279	1727	26061	Active mobility ordinary acutes (index of attraction)
10.2	7.8	11	15.3	11.6	13.9	9.6	8.5	7.3	8.7	9.3	11.1	5.9	% active mobility ordinary acutes (index of attraction)
24115	49528	20140	11545	22378	28261	24567	7135	28396	7331	39957	2643	30785	passive mobility (ordinary regime acutes)
15.9	8.5	12	10.5	5.8	5.7	14.1	5.5	6.2	13.9	3.8	16	6.9	% passive mobility (ordinary regime)
-9708	-4039	-1774	6237	25280	47410	-8745	4374	5352	-3009	63322	-916	-4724	hospitalization (active
0.64	0.92	0.92	1.46	2	2.44	0.68	1.55	1.18	0.63	2.45	0.69	0.86	(attraction index / escape
163	168	192	190	217	204	194		189		193		200	LEA
105.89	93.16	107.5	109.17	110.04	106.94	129.85	110.08	92.6	83.33	90.94	100.12	110.88	Mortality rate

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Regions	Piedmont	Valle d'Aosta	Lombardy	-Alto	Veneto	Venezia	Liguria
BES health compound index	106.7	100.9	111.7	121.3	109.7	111	110.1
Composite education and training	110.5	108.9	109.1	125.9	111.7	121.4	112.5
Composite of work quality and job satisfaction	99	104.7	103.7	108.3	107.9	105.4	98.2
Composite income and inequality	103.6	102.6	103.7	104.3	105.4	106.9	98.2
Composite unease	101.1	108.8	104.5	122	108.8	108.2	102.1
Composite social relations	101.1	108.8	104.5	122	108.8	108.2	102.1
Trust in other types of institutions	7.3	7.4	7.3	7.6	7.2	7.5	7.3
Presence of deterioration elements in the living area	12.4	6.5	12.9	8.9	6.8	4.2	12
Satisfaction for own standardized life	44.6	45.8	39.2	46.8	44.6	45.4	39.2
Composite landscape and cultural heritage							
Composite environment							
innovation rate on the	23.3	18.7	23.8	21.2	27.7	18.3	24
Difficulty of access to some services	4.9	6	3.6	4.3	5.3	5.3	5.7
GDP 2015	127443	4384	359047	39987	151791	35681	48008
Number of residents	4414357	127814	10005482	1057524	4921360	1224170	1577158
Per capita GDP	2.89	3.43	3.59	3.78	3.08	2.91	3.04
Active mobility ordinary acutes (index of attraction)	26087	1702	109935	4627	36526	10838	15743
% active mobility ordinary acutes (index of attraction)	5.9	11.3	10	9.2	7.7	8.5	9.7
passive mobility (ordinary regime acutes)	31297	2609	40664	7544	28246	8169	24375
% passive mobility (ordinary regime)	7	16.3	3.9	14.2	6.1	6.5	14.3
hospitalization (active mobility - passive	-5210	-907	69271	-2917	8280	2669	-8632
(attraction index / escape	0.84	0.69	2.56	0.65	1.26	1.31	0.68
LEA	205		196		202		194
Mortality rate	121.08	116.81	98.16	87.85	100.15	119.46	141.21

Molise	Campania	Puglia	Basilicata	Calabria	Sicily	Sardinia
102.2	86.6	93.9	92.5	85.7	92.8	93.5
103.5	92.3	95.2	97.5	101	87	97.4
90.4	79.9	82.2	84.6	68.9	72	83.7
93.1	77.3	88.4	89	82.6	71.7	91
99.2	74.4	81	90.9	78.5	72.3	84
92.5	80.5	83.7	88.2	87.5	83.8	102.2
3.3	3.6	3.3	3.1	2.9	3.2	3.4
104.6	94.6	98.4	93.2	85.1	97.4	88.6
88.5	69.6	82.6	79.1	86.8	78.5	89.3
81.9	79.9	92.8	91.9	75.2	84	100.3
100.7	105.4	103.5	103.5	98.7	92.4	108.1
10.8	13.4	17.8	18	11.9	13.5	13.6
4.7	10	12.3	11.2	12.3	11.3	6.4
5821	100030	68760	10818	31866	84444	32101
314037	5865747	4090186	577505	1978582	5093509	1663573
1.85	1.71	1.68	1.87	1.61	1.66	1.93
13.98	12.04	13.27	12.63	13.62	12.77	12.99
11024	15979	20959	10774	4016	9463	3105
27.7	2.7	4.4	18.8	2.5	2	1.7
8911	52628	39615	13561	39264	32111	9701
23.6	8.3	8.1	22.5	20.1	6.5	5.1
2113	-36649	-18656	-2787	-35248	-22648	-6596
1.17	0.33	0.54	0.84	0.12	0.31	0.33
159	139	162	177	137	170	
111.74	87.64	89.32	102.39	96.78	97.09	92.13

Table 2: Mobility and variables year 2015

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Valle d'Aosta	Piedmont	Regions	Sardinia	Sicily	Calabria	Basilicata	Puglia	Campania	Molise	Abruzzo	Lazio	Marche	Umbria	Tuscany	Romagn
		BES health compound index	97	93.2	86.3	98.1	97.5	86.8	103.3	103.6	104.1	100.1	109.1	111.3	108
32.7	31.7	Cultural participation	96.8	87.4	104.3	102.6	94.1	92.9	106.5	110.5	105.6	116.1	119.8	113.5	109.9
7.7	7.5	quality and job	83.3	69.7	70.4	92	82.3	79.7	89.7	90.6	88.9	98.9	97.4	99.9	100.7
4.6	4.8	Composite income and inequality	88.3	70.3	78.5	94.8	81.4	80.7	99.7	82.4	100.8	95.7	93.6	103.6	105.3
		Composite unease	96.3	84	79.3	89.6	84.3	78.5	89.2	94.5	95.5	99.3	100.7	104.2	102.7
		Composite social relations	96.3	84	79.3	89.6	84.3	78.5	89.2	94.5	95.5	99.3	100.7	104.2	102.7
7.4	7.3	Trust in other types of institutions	7.3	7.3	7.1	7	6.9	7.2	7	6.9	7.1	7.3	7.2	7.1	7.2
6.6	12	deterioration elements	9.5	9.8	14	5	7.6	13	7.1	12.9	24.6	6	10.1	14.5	11.1
45.8	44.6	Satisfaction for own standardized life	39.8	35.3	38.5	34.5	38.1	28.1	37.9	43.9	37.5	43.2	41.2	43.5	44.6
		Composite landscape and cultural heritage													
		Composite environment r													
		innovation rate on the	12.8	10	14.2	12.3	14.3	11.9	13.1	12.3	16.7	17	15.4	20.4	23
7.3	5.4	Difficulty of access to some services	5.4	10.4	12.1	10.6	12.5	10.8	6.5	7	7.3	6.3	5.3	5.6	6.6
127106	4398386	Number of residents	32061	86759	32502	11201	70099	100653	5907	32109	182406	40185	21196	110380	149313
		Per capita GDP	1660712	5083171	1973576	575157	4083636	5856190	312688	1329044	5890449	1547274	892972	3748526	4449327
1638	26821	ordinario (indice di	1.93	1.71	1.65	1.95	1.72	1.72	1.89	2.42	3.1	2.6	2.37	2.94	3.36
11.6	6.2	ordinario (indice di	3171	8614	3929	10677	21136	16478	10818	14907	43735	17409	17248	48182	76304
2182	30871	mobilità passiva (acuti regime ordinario)	1.8	1.9	2.5	18.8	4.6	2.9	28	10.7	7.7	10.8	15.3	11.9	14.1
14.8	7.1	% mobilità passiva (regime ordinario)	10036	32731	39477	13730	39801	52593	8837	23520	51109	21269	11687	22861	28868
-544	-4050	ricoveri (mobilità attiva	5.4	6.7	20.6	22.9	8.4	8.6	24.1	15.9	8.9	12.9	10.9	6	5.9
0.78	0.87	mobilità (indice di attrazione/indice di	-6865	-24117	-35548	-3053	-18665	-36115	1981	-8613	-7374	-3860	5561	25321	47436
			0.33	0.28	0.12	0.82	0.55	0.34	1.16	0.67	0.87	0.84	1.4	1.98	2.39
				153	147	170	155	106	156	182	176	190	189	212	205
			99.23	104.06	102.71	110.96	96.74	95.84	122.71	113.8	99.35	117.01	118.54	120.24	114.46

Table 3: Mobility and variables for 2016

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Sardinia	Sicily	Calabria	Basilicata	Puglia	Campania	Molise	Abruzzo	Lazio	Marche	Umbria	Tuscany	Romagn	Liguria	Venezia	Veneto	-Alto	Lombardy
28.9	20.5	15.4	23.4	19.5	19.7	22.9	23	33.7	29	29.9	30.9	34.1	30.6	38.4	31.9	40.6	34.1
7.4	7	7.2	7.2	7.2	7.1	7.4	7.2	7.2	7.3	7.4	7.4	7.4	7.3	7.5	7.5	7.8	7.4
6.4	9.2	8.2	5	5.8	8.4	5.7	4.8	6.6	5.2	5	4.7	4.6	5.3	4.1	4.3	4.6	5.5
7.3	7.1	7	6.9	7.2	7	6.9	7.1	7.3	7.2	7.1	7.2	7.4	7.3	7.5	7.2	7.6	7.3
9.6	9.8	13.8	4.7	7.5	12.9	7	12.7	24.5	5.9	10.1	14.5	10.9	11.7	4.2	6.9	8.8	12.6
39.8	35.3	38.5	34.5	38.1	28.1	37.9	43.9	37.5	43.2	41.2	43.5	44.6	39.2	45.4	44.6	59.8	46.8
6	10.4	12.2	9.7	11.5	12.1	6.5	6.3	7.9	6.2	6.2	6.1	7.7	5.5	5	6.1	3.5	4.1
1655637	5065451	1967825	572030	4070527	5844967	311238	1324380	5893298	1540904	890045	3743418	4448494	1568180	1219545	4911326	1060987	10013758
3178	7971	3739	10253	21975	15956	9986	15033	44091	17064	16012	47368	76018	15926	11735	38783	4781	115108
1.8	1.8	2.5	18.6	5	2.8	27.8	10.8	8	10.8	15.1	12	14.3	10.1	8.8	8	9.7	10.6
9858	33565	39212	13865	39837	53017	9407	23574	52004	21867	11824	22751	29035	25426	8484	29139	7858	40586
5.5	7.1	21.3	23.6	8.7	8.9	26.6	16	9.3	13.4	11.6	6.1	6	15.3	6.5	6.1	15	4
-6680	-25594	-35473	-3612	-17862	-37061	579	-8541	-7913	-4803	4188	24617	46983	-9500	3251	9644	-3077	74522
0.33	0.25	0.12	0.79	0.57	0.31	1.05	0.68	0.86	0.81	1.3	1.97	2.38	0.66	1.35	1.31	0.65	2.65

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