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How the State acts on public health systems: the case of the Brazilian Unified Health System

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Abstract

This article analyzes the action of the State through the Brazilian public health system, known as the Unified Health System (UHS), from a social and spatial perspective. A quantitative approach is used to understand the scenario of public spending and the provision of services and professionals of UHS among the territories of health regions. It is possible to observe that the capacity and the autonomy to achieve the objectives of the State concerning health are contradictory and heterogeneous across the country. There is an unequal distribution of resources among regions. This can be explained by the influence of each locality's socioeconomic context, the role of each federative entity in the distribution of resources, the joint decision-making mechanisms, and the decentralization and regionalization processes. Additionally, the system's historic trajectory that has privileged some populations and regions over others is also an explanatory factor.

Keywords: State, Public policy, Health system, Unified Health System, Health regions, Health inequalities.

Introduction

This article approaches the State action in the sphere of the Unified Health System (UHS), analyzing the allocation of public spending and the provision of services and professionals by the UHS to the population, while considering its social and spatial aspects. This research aims to answer the following questions: How can we describe the State's action on health in Brazil? Does the system follow the equity objectives outlined by the Brazilian legislation? What social and spatial aspects are taken into account in the distribution of state resources?

To answer such questions, a quantitative approach is adopted, including the descriptive statistics and association measures; additionally, I analyze Brazil's 438 health regions. These areas comprise the politico-sanitary territories under UHS strategy. They comprise a group of municipalities but though its governance is shared among the three Brazilian federated entities. In order to measure health status, the indicators chosen were: (1) Public health expenditure per capita (2013) (based on total expenditures of the municipalities that comprise the region); (2) UHS Offer: Establishments with UHS services per thousand inhabitants (2012); number of UHS doctors per thousand inhabitants (2012), and UHS non-medical health professionals per thousand inhabitants (2012); and lastly (3) UHS actions and services, which include: Population coverage estimated by the basic healthcare teams (2012) and proportion of live births to mothers with seven or more prenatal consultations (2012). The sources used are official government statistics from the Ministry of Health and the Brazilian Institute of Geography and Statistics (IBGE). These indicators are observed in light of the dimensions of average household income per capita (2010) in the health region and in its respective macroregion (North, Northeast, Central West, South or Southeast).

The article is divided into three sections. After the introduction, I highlight the approach adopted by the State as part of my analysis. In the second

section I succinctly present how the UHS has been constructed and the results in its current configuration. In the third section I present the results of the empirical analysis, where I use the definition of state previously mentioned. Lastly, I present my conclusions about the research findings.

Defining the State

The definitions of state vary according to the theoretical strands of political science and political sociology. My purpose is not to exhaust the concepts nor to present a definitive description. Nevertheless, I highlight the most pertinent ideas surrounding the concept. Skocpol (1985) presents the view that public policies are not only results of societal demands, but that the state has a certain autonomy and certain capacities to carry them out. For Skocpol (1985, p. 9), the concept of state autonomy means that states are conceived as organizations that claim control over territories and people, states can formulate and pursue goals that are not simply reflexes or demands of the interests of social groups, social classes or society in general. In order to more or less effectively implement its objectives, the state depends on the availability of resources and the actual or potential opposition of groups or the adversity of the circumstances, that is, of the social configurations in which it is immersed. In this view, states are necessarily seen as actors, whose collectivities of organized officials, especially those relatively isolated from the dominant socioeconomic interests, may adopt new strategies in times of crisis or may work to maintain policies for long periods of time.

For the analysis undertaken in this paper, it is especially pertinent to adopt the point of view that the State must go beyond what resources and instruments are available to it for greater capacity for state action as an isolated actor. For Skocpol (1985), states should be examined in relation to the socioeconomic and political contexts in which they are immersed, and to the actors involved with their own interests and resources (1985, p.19). The author

argues that it is not a question of moving from "social-determinist" to "state-determinist" explanations, but rather from analyzing states in relation to socioeconomic and sociocultural contexts.

With a similar view, Rueschemeyer and Evans (1985) propose to go beyond the notion of State as a corporate actor. The authors conceive the state as an expression of several simultaneous and contradictory tendencies, always running the risk of becoming an arena of social conflict. The authors state that their definition of state is essentially Weberian, since they consider that it is constituted as a set of organizations invested with authority to make their decisions obligatorily followed by the people of a territory. In order to implement these decisions, they use, if necessary, force (Rueschemeyer; Evans 1985, p. 47).

Effective state action requires minimum coordination and coherence within and between its organizations. In order to do so, it requires a certain autonomy and detachment from the divergent forces of civil society, aiming for state organizations to be guided by their goals or rather by external demands and interests. This task becomes more difficult as state actions also require greater decentralization to be efficient and reach society as whole, which is particularly difficult in federative states such as Brazil. When the subunits of the state have some degree of autonomy, the state apparatus may be more likely to be abused for purposes that diverge from those aimed at fulfilling the general objectives of the state, creating an environment prone to social conflict (Rueschemeyer; Evans, 1985). In other words, the authors include in their discussion the mechanisms that allow an integration between the decentralized subunits for a coordinated, coherent, and effective action of the State. This is an important issue for the analysis of the action of the Brazilian State in the territories of health regions.

The perspective adopted by Rueschemeyer and Evans (1985) conceives the state as a structure composed of a myriad of facets, generally contradictory, and the constraints of its effective action as dependent on how

these contradictory tendencies are combined. Thus, even assuming the state as an actor, its ability to act in a coherent way is not automatic, but something built throughout its history and conditioned by various external factors and internal configurations. It depends on a certain degree of autonomy in relation to the dispersed interests in society and its capacity for intervention, directly linked to the structure of the bureaucratic apparatus and its coordination.

The view of Skocpol (1985) and of Rueschemeyer and Evans (1985), which characterizes a historical approach to institutionalism, is adopted in this study. The neo-constitutionalism is used specifically, considering the distinction proposed by Hall and Taylor (2003) between three approaches of neoinstitutionalism, in the sense that the trajectories of the institutions matter, in order to evaluate the results of the State action as to its autonomy and capacity for intervention. For this research specifically, the historical neoinstitutionalism approach is important, given its link to path dependence. Historical neoinstitutionalism theorists attribute to previous political choices the influence of political legacies of institutions. Each particular social and political configuration would be inherited from past properties, so the same forces produce different results depending on this trajectory (Hall; Taylor, 2003).

Unified Health System: historical basis and current configuration

The UHS is organized in a combination of public and private sectors, constituting three subsectors, according to Paim and collaborators (2011): the public subsector (financed by the State), the private subsector (financed in various ways, such as by direct disbursement), and the complementary health sub-sector (different types of private plans and fiscal subsidies). This study refers to the public subsector, that is, the public spending on health and indicators of actions and services that work through the UHS. This includes establishments, professionals, and coverage of services available (in

theory) to the whole population, without distinction of payment or other access barrier, and financed by the State, even if the State hires private institutions.

The trajectory followed by UHS, since its institution and the health system that preceded it, is crucial in the analysis of its action in the present, especially to understand its limits when it comes to providing services and the challenges for the consolidation of legally defined principles of universality, integrality and equity. In this sense, the analysis by Gerschman and Santos (2006) of the bases of UHS in the twentieth century elucidates some important points that impact the organization today.

In the 1970s, two elements guided health policy: (1) expansion of coverage, through the purchase of private sector services and national programs (such as immunization), and (2) alternatives to hegemonic projects such the new "Sanitary Reform" (Gerschman; Santos, 2006), which was formulated and implemented by the Ministry of Health, though proposed by a non-hegemonic group (the Sanitary Reform Movement). In this context, Gerschman and Santos (2006) identified as a path dependency line: private provision of services as a way of making universalization feasible and the influence of private providers in the decision-making process of health policy. Health entrepreneurs have won several political negotiations that have secured subsidies to expand their technology parks.

The legal institution of the UHS was set on the Federal Constitution of 1988, when, for the first time, Brazil recognized health as a social right and formally created a universal public system as a result of various struggles and efforts undertaken by the Sanitary Reform movement. The UHS as an institution established health as a citizenship right and the State's duty. The principles of universal and egalitarian access, understood as the possibility of all Brazilians to enjoy health services without any barrier, discrimination, or prejudice (Paim, 2009).

However, even after the establishment of a single national health system, the private sector consolidated as a provider in two niches: in the provision of some services well remunerated by the State (providing such services and being paid by the public sector) and as a provider of differentiated supplies to sectors of the population that make selective use of the public system (Gerschman; Santos, 2006).

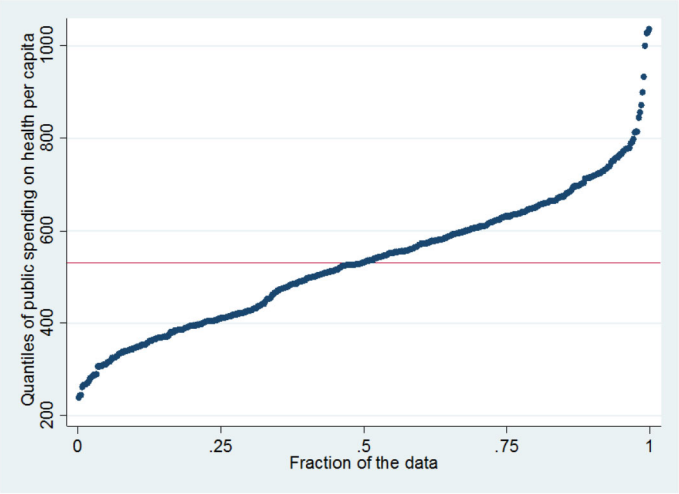
The financing of UHS has been one of the biggest challenges since its establishment in the Constitution, given that there has not been any type of correlation between social security contributions and the actions of any branch of the Social Security, to guarantee the necessary resources to ensure compliance with UHS principles (Marques; Mendes, 2012). According to Marques and Mendes (2012), there has been a permanent tension between the principle of building universality of access and constraints on public spending, so that until now it has not been possible to define the adequate sources for its financing. Ugá and Santos (2006) point out that the financing structure of UHS is inherited from the previously existing health system and the consequent expansion of the private sector. The result is a structure of public expenditure equal to that of systems without universal access (as in the United States).

The form of allocation of expenditures within the UHS is regulated by legislation. The federal government is expected to apply at least the amount equal to the previous year, corrected for nominal GDP variation. The federal government is the main funder and historically applies half of the public resources spent on health in the country. The federated states are expected to allocate a minimum of 12% of the state's revenue to UHS funding. Municipalities must, in turn, apply 15% of municipal revenues in addition to those transferred by the federal and state governments (Paim, 2009).

Empirical evidence among Brazilian health regions

One way of examining the use of health services from the point of view of the State's provision is to observe the form of allocation of its expenditure. For Travassos and collaborators (2000), equality and equity have different meanings in the analysis of health service usage. When a policy is equity-oriented, it is assumed that there is an unequal redistribution of resources due to the adjustments that should be made to circumvent the biological, social and political-organizational factors that shape the already existing inequalities. The distribution of public spending on health in a given population can be visualized by means of a Q-Q plot. Figure 1 shows the Quantile Curve relative to the distribution of public per capita expenditure on health of the health regions (vertical axis) and the accumulated fractions by health regions (horizontal axis).

Figure 1. Quantiles Curve for the distribution of public per capita spending on health by health regions, 2013, Brazil

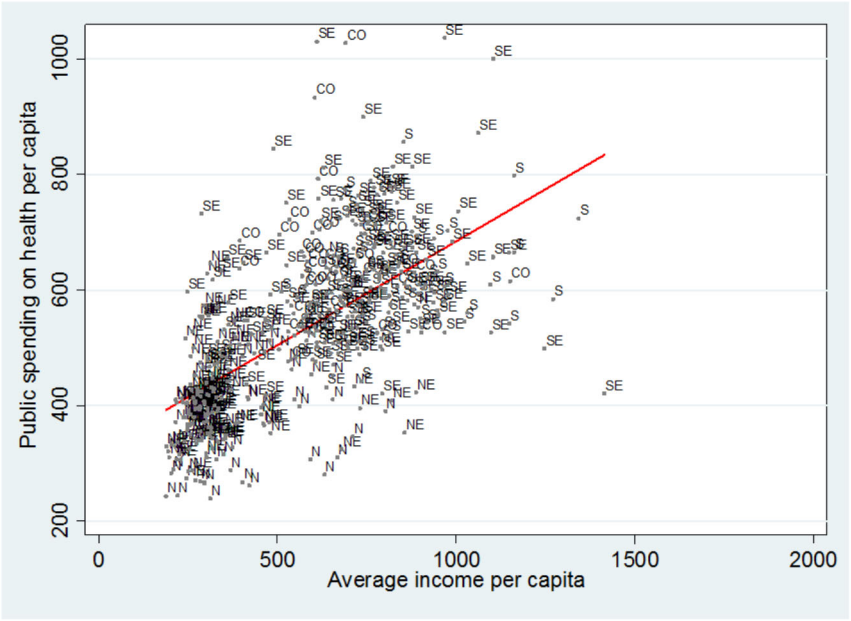


Source: developed by the author.

The reference line in red is the average per capita spending (R$ 531.59). If there were no inequality in expenditure distribution among health regions, the blue curve would be a horizontal line, parallel to the axis of the health regions and equal to the average expenditure. It can be noted that in the Brazilian scenario there is no equitable distribution of public per capita spending on health among health regions. Up to 75% of the health regions do not present a large relative volume of public expenditures on health nor homogeneity of expenditures, since the graph presents a less sinuous, though still inclined curve and for the 25% that spend the most in health an abrupt rise is observed. Besides the unequal distribution of expenditure, the analyzed data suggests a tendency of association with the socioeconomic level of the region. Figure 2 shows the scatter plot with the average per capita income by region on the horizontal axis, and on the vertical axis its public per capita expenditure on health .

It can be observed in Figure 2 that there is a positive trend that the higher the average per capita income of the region, the higher its per capita expenditure on health. Spearman's correlation coefficient test confirms this trend, which appears visually in the diagram, being statistically significant (0.671 at $p < 0.001$), indicating a substantial and positive correlation (Table 1). Identifying which macroregions belong to health regions with extreme values is fundamental in this analysis. The regions with the highest values in terms of spending are located in the Center-West and Southeast, followed by the South (according to the labels of the points in Figure 2). On the other hand, the health regions with the lowest expenditures are mostly from the North and also show the lowest values of average per capita income. Some regions of the Northeast can be identified in the graph, close to those in the North in terms of public spending, though showing higher values of per capita income. Neither of the extreme values, at both right and top, belong to northern and northeastern macroregions. Thus, the trend is that public spending on health is positively associated with the income level of the health region and that there is a pattern in the geographical location of extreme values in Brazil.

Figure 2. Scatter diagram for average per capita income (2010) and the public per capita expenditure on health (2013) with legend from macroregion, Brazil



Source: developed by the author.

Table 1 shows that the minimum and maximum values for public per capita health expenditure show an absolute difference ratio of over four times between these regions. The northern macroregion presents the lowest mean and median per capita health expenditures among the macroregions (R$ 375.53 and R$ 340.22, respectively), and is the health region that shows the lowest expenditure in Brazil (R$ 239.15) and the highest coefficient of variation among health regions (0.28). The northeastern macroregion ranks second with both the lowest means and medians (R$ 409.21 and R$ 397.91, respectively) and with the lowest spending (R$ 273.32) per inhabitant, which is close to the minimum value of the North.

Table 1. Public per capita expenditure on health by macroregion, 2013, Brazil.

Public expenditure on health per capita	N	Mean	Standard Deviation	Coefficient of variation	Minimum value	P 25	P50 (Median)	P75	Maximum value
Brazil	437[1]	531,59	145,39	0,27	239,15	411,21	531,35	631,31	1036,33
N	45	375,53	104,66	0,28	239,15	288,85	340,22	462,83	661,55
NE	133	409,21	67,55	0,17	273,32	365,6	397,91	431,48	645,98
CW	38	646,23	104,3	0,16	480,36	604,96	635,905	696,2	1027,4
SE	153	617,08	116,13	0,19	418,72	531,35	594,94	678,87	1036,33
S	68	617,83	83,63	0,14	442,54	553,3	603,98	663,07	856,09

[1]N 437 because the health region Federal District does not have this data.
Source: developed by the author.

The Center-West has the highest average of health spending in the health region, reaching R$ 646.23 (with median value of R$ 635,905), showing one of the highest maximum values (R$ 1027.40) and the highest minimum value among health regions aggregated by macroregion (R$ 480.36). The South and Southeast have similar average health spending, R$ 617.83 and R$ 617.08 per inhabitant, respectively. Given that the Southeast has the health region with the highest health expenditure in Brazil (R$ 1036.33) and a median value lower than the mean (R$ 594.94), this may indicate that its average is affected by the discrepant values. The South has a lower variability in data, expressed in the lowest coefficient of variation (0.14) and shows the median value that is closest to the mean.

Looking at the description of such spending allocation trends in terms of equity among the Brazilian macroregions, some issues can be identified. As Nunes and collaborators (2001) point out in their analysis of the Brazilian health system, equality in per capita public spending would be a desirable objective from the ethical point of view of the equal value of all lives, or because, at an aggregate level, the average needs of the population do not differ significantly. What varies in their analysis is the capacity of each state

(which is the unit of analysis used by these authors) to pay for services. In this sense, federal spending should compensate for inequalities through differentiated allocations of money, favoring poorer states. According to the authors, this has not occurred (Nunes *et al.*, 2001).

The study by Ugá and collaborators (2003) identifies the same trend, considering the allocation of federal spending among states. Expenditures with outpatient care favored the more developed macroregions, namely Southeast, South and Center-West. At this level of health care, the remuneration is based on the production of UHS accredited institutions, which is conditioned by the availability of these services (Ramos; Angel, 2010; Paim, 2009). Given the logic of the historical legacy prior to the UHS, currently the localities that receive the highest values are those that already concentrate higher supply of services capacity. Therefore, the macroregional disparities found by analyzing the public expenditure on health per inhabitant of the health regions are in line with the studies that specifically analyze the difference of the federal transfers to the states. There is a distortion of spending that favors the health regions of the South, Southeast and Central West, areas that already present better results in terms of health levels. It can be observed that in these territories, where there is a joint action of the three federated entities, the inequality of the allocation of expenditure reinforces what the literature of the area indicates as the absence in the UHS of appropriate geographic, epidemiological, and social criteria for distribution of its resources (Nunes *et al.*, 2001). The difference, when using regions instead of states as a unit of analysis, consists on verifying that there are internal discrepancies in the macroregions, suggesting the need for a more redistributive role of the state agents, who should have a more active federal role. Analyzing the State's action on equity in the provision of services and health professionals, I observed a pattern similar to the allocation of public spending among health regions, as Table 2 demonstrates.

Table 2. Indicators of provision of the health system, 2012, Brazil.

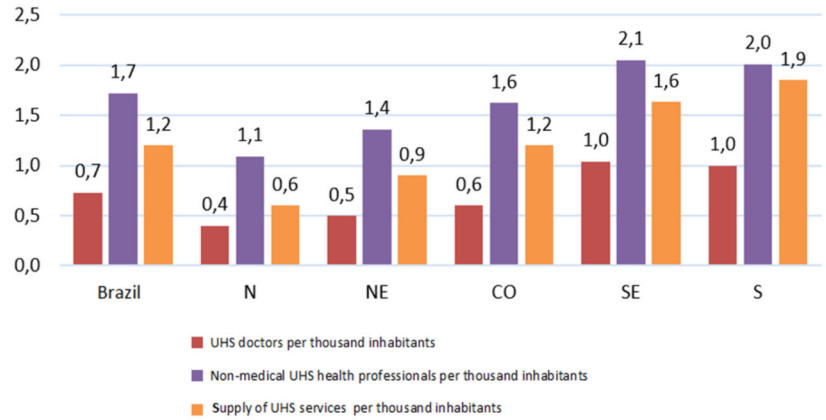
	N	Mean	Standard Deviation	Coefficient of variation	Minimum value	P 25	P50 (Median)	P75	Maximum value
Supply of UHS services per thousand inhabitants	438	1,34	0,64	0,48	0,3	0 ,83	1,2	1,77	3,69
UHS doctors per thousand inhabitants	438	0 ,85	0 ,49	0 ,57	0 ,14	0,47	0,73	1,11	3,08
Non-medical UHS health professionals per thousand inhabitants	438	1,78	0 ,61	0 ,34	0 ,50	1,32	1,72	2,16	3,76

* = correlation is significant at the level of p< 0,001.
Source: developed by the author.

There is a difference in the provision of services offered through the UHS of more than 12 times between the health regions with the highest and the lowest amount per thousand inhabitants (Table 2). Considering that each health region should provide a minimum of actions and services to its population, it can be observed through the values presented that there are health regions with substantial lack of services. The number of physicians who attend the UHS per thousand inhabitants has an even higher disparity between the minimum and the highest values, about 22 times. Its coefficient of variation is the highest (0.57), indicating that the supply is distributed in a very heterogeneous way among the health regions. The ratio for the absolute difference between extreme values of non-medical UHS health professionals is seven times, indicating a smaller disparity and a more homogeneous distribution (CV of 0.34) (Table 2). These variations in the distributions of health system services are relevant because they suggest that some health regions are concentrating the material and human resources of the health system.

Observing the distribution of these indicators of services and health professionals provision, for the five macroregions of the country (Figure 3), distortions appear among the South, Southeast and Center-West in relation to the North and Northeast, as well as the distribution of expenditure.

Figure 3 - Health region values in the median (p50) of UHS provision variables according to macroregion, Brazil, 2012.



Source: developed by the author.

Figure 3 highlights that for the three indicators of provision, the median values for the health regions of North and Northeast are considerably lower than the national references, while South and Southeast have the values of the medians above the national value for the three indicators. Other studies that analyzed indicators of production and provision of UHS services also show differences across the Brazilian territory. In a recent study, Viana and Silva (2017) highlighted the unequal distribution using the macroregions as the unit of analysis. The authors identify that the South and Southeast tend to present higher numbers for the majority of indicators of coverage and production of health services (hospitalizations, procedures, examination rates) in

the UHS (2015), while the northern macroregion shows lower numbers. These results suggest that the production of services, as well as the expenditure, is related to the existing availability of UHS resources in each territory. In this sense, Porto and collaborators (2014) conclude that a more equitable allocation of public resources is necessary and emphasizes the investment of capital in areas with assistance vacuums. According to these authors, the unequal distribution of healthcare resources is exacerbated, since the Brazilian system was structured on the basis of reimbursement to service providers according to the provision of existing services that were concentrated in richer and healthier geographical areas. Table 3 presents the descriptive statistics of indicators on UHS coverage: prenatal coverage and primary health care coverage.

Table 3. Variables on health system coverage, 2012, Brazil

	N	Mean	Standard Deviation	Coefficient of variation	Minimum value	P 25	P50 (Median)	P75	Maximum value
Proportion (%) teams of Live births with seven or more prenatal visits	438	62,93	15,87	0,25	15,56	51,94	66,42	75,06	93,96
Population coverage indicators estimated by the Primary Health Care	438	75,99	16,06	0,21	22,48	64,45	78,28	88,3	100

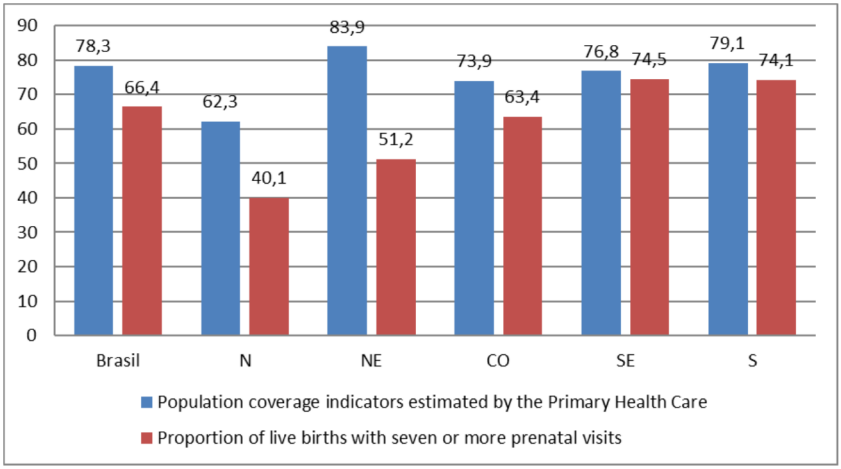
* = correlation is significant at the level of p< 0,001.
Source: developed by the author.

Analyzing the indicators presented in Table 3, a different pattern can be observed in relation to the indicators of health services and professionals provision (Table 3). First, the variation coefficients, which are lower than those found in the provision variables. The population coverage estimated through primary care teams is 0.21 and the proportion (%) of live births with seven or more prenatal visits is 0.25, suggesting a greater homogeneity in the distribution of this coverage between the health regions.

The indicator of prenatal coverage has a pattern of geographical distribution similar to the other indicators analyzed so far: the average for health regions of the North is 42.28% and of Northeast is 51.94%, while the average of health regions of the South is 74.08%, of Southeast is 73.59% and of Center-West is 62.87%. Although the mean (62.93%) and the median (66.42%) values for the health regions at the national level are relatively high, and about 25% of the total have coverage above 75%, a very disparate coverage is observed among regions. The health region with the lowest percentage (15.56%) is in the North, while the highest one (93.96%) is in the Southeast, with a difference of six times. The lowest coverage rates in the health regions of the South, Southeast or Center-West are close to 50% coverage, while in the North or Northeast, this rate can be as low as a 20% coverage.

The values of prenatal coverage of health regions that are in the 50th percentile (median) in each macroregion and the national value can be visualized in Figure 4, compared to the same measure for primary health care coverage. Figure 4 shows, with respect to the prenatal coverage indicator, that the median values of the health regions of the South (74.13%) and Southeast (79.12%) are above the national reference (66.42 %), the median of the Center-West (63.42%) is a value just below the national value, while the North (40.05%) and Northeast (51.15%) values are considerably below the national reference.

Figure 4. Health region values in the median (p50) of the population coverage indicators estimated by the primary health care and proportion of live births with seven or more prenatal visits, macroregion, 2012, Brazil



Source: developed by the author.

Figure 4 suggests, together with the descriptive measures set out in Table 4, that the population coverage estimated through primary health care teams has markedly higher mean and median values (75.99% and 78.28%, respectively) than the proportion indicator of live births to mothers with seven or more prenatal consultations. It should be highlighted, regarding the level of coverage of basic care in Brazil, that in 2012 there were nine health regions with 100% coverage (4 in SE and 5 in NE) and 95 health regions with more than 90% coverage (47 in NE). It can be seen in Figure 4 that the macroregions that present indicators of primary health care coverage mean values above the national (78.28%) are the Northeast (83.92%) and the South (79.12%). As to the southeastern region, considering the primary health care coverage, it presents the median health region with a slightly lower coverage than the national reference (76.61%). The Center-West shows a still lower (73.91%) one and the macroregion with the lowest median value is the North (62.25%).

The height of the bar of primary health care coverage for the Northeast stands out in the graph (Figure 4). Contrary to the pattern of the other indicators of the health system analyzed in this study, which point to a disparity concentrating the best indicators in the South or Southeast, the macroregion with best results in the coverage of primary care is the Northeast. Thus, in addition to primary health care coverage showing a more even distribution trend in health regions, the results indicate that high percentages of coverage are in regions of the country where there is a larger care gap. The northern microregion, however, still reveals the lowest level of coverage, in addition to the lowest expenditure and provision indicators.

The primary health care coverage is highlighted in the literature that analyzes its distribution across the national territory as one of the actions that favors the regions and population segments with higher health needs (Viana; Silva, 2017; Ugá *et al*., 2003). According to Viana and Silva (2017) this is due to the expansion of the Family Health Strategy (ESF) in the second half of the 1990s, which occurred first in small municipalities in the northeastern region. The municipal adherence to the program was encouraged by the availability of funds from the federal government', along with the regular transfers of the Minimum Primary Care (Gerschman; Santos, 2006).

Table 4 shows the average of the indicators of the health system analyzed, on expenditure, provision of material structure and UHS professionals, and on primary health care coverage and prenatal coverage, according to income quartiles. The first quartile being the 25% poorest health regions and the fourth quartile the 25% richest. The last column shows the correlation coefficient of each of the indicators analyzed with the average per capita income variable.

The averages of the health system indicators in each income quartile and the correction coefficients with the income of health regions show a tendency of association: the richer the region, the higher the average spending, resources provision and coverage offered by the system, except for the population coverage indicators estimated through the primary health care. The

health regions up to the first income quartile spend, on average, 1.5 times less than the quartile of the wealthiest health regions. In the richest quartile, each inhabitant is benefited, on average, from an investment R$ 235.34 higher than those in the poorest quartile.

Table 4. Distribution of health system indicators among income quartiles, Brazil

Health System Indicators	Quarter 1	Quarter 2	Quarter 3	Quarter 4	CC Income[1]
Public expenditure on health per capita (2013)	396,89	494,94	603,55	632,23	0,6709*
Supply of UHS services per thousand inhabitants (2012)	0,76	1,04	1,61	1,94	0,7530*
UHS doctors per thousand inhabitants (2012)	0,44	0,61	0,96	1,39	0,8192*
Non-medical UHS health professionals per thousand inhabitants (2012)	1,27	1,58	2,03	2,26	0,6682*
Proportion (%) of Live births with seven or more prenatal visits (2012)	50,39%	57,67%	69,37%	74,31%	0,6316*
Population coverage indicators estimated by the Primary Health Care (2012)	82,35	77,38	75,85	68,36	-0,3336*

[1] Spearman Correlation Coefficient with the variable Average Income per capita.

* = correlation is significant at the level of p< 0,001.

Source: developed by the author.

However, the number of establishments with UHS services shows an absolute difference between extreme quartiles greater than that of public spending on health, the mean of the richest quartile of health regions being 2.5 times higher than that of the poorest one. Health regions of the poorest group have an average of 0.75 in provision of services per thousand inhabitants, while for those in the richest group the average is 1.94. The correlation between the number of UHS services per thousand inhabitants and the average income of the region is stronger than that related to expenditure (0.7530 and $p < 0.001$) and is the second strongest among analyzed variables of state action.

Considering that value 1 represents a perfect correlation, the indicator of UHS physicians available per thousand inhabitants in the regions is the one showing the strongest correlation with the income socioeconomic indicator (0.8192 and $p < 0.001$): the higher the average income of the health region, the greater the number of physicians provided by the UHS in the region. Observing the difference between the extreme quartiles of income, health regions of the richest stratum have, on average, 3.1 times more doctors than those in the poorest quartile. As to other health professionals, the difference is 1.77. The correlation between non-medical UHS health professionals per thousand inhabitants and average income is also considerably lower (0.6868 and $p < 0.001$). These results suggest that health professionals who are enrolled with UHS are more present in the richer health regions of the country and that the distortion is further aggravated when it comes to doctors.

The difference between the proportion of live births to mothers with 7 or more prenatal consultations of the first quartile and of the last one is 24%. While in the group of regions with the lowest average income (1st quartile), about half of the pregnant women had access to seven or more consultations, the percentage for the richest health regions (4th quartile) was almost 75%. This difference also reflects the correlation between the indicator and the average income level, whose value is close to the tendency of public spending on health and is also positive (0.6316 and $p < 0.001$).

The indicator of primary health care coverage, which is greater for the poorer strata, shows a 14% difference between the richest and poorest quartiles. The same tendency is observed in its coefficient of correlation with the average income of the health region, the only negative value (-0.3336 and $p < 0.001$). Although not a very strong correlation, it is in the opposite direction to the other indicators: the higher the average income in the region, the lower the level of primary health care coverage. This trend corroborates the studies that point to PHC as a mechanism favorable to equity, as well as the distribution of state resources (Mesa-Lago, 2007), presenting higher coverage in health regions with greater socioeconomic needs.

In general, it is possible to observe that the indicators of public spending allocation, provision of services and health professionals, and health services coverage tend to be distorted based on geographic location. They are more favorable in the southern, southeastern and center-western regions, from the perspective of per capita income and from the health regions of the 4th quartile of income, except for the indicator of primary health care. These results allow to conclude that, although equity is sought as a goal of the State in the field of health, there is evidence that richer regions have both better health levels and more health services available, as well as more public resources destined to their inhabitants.

The analysis of state action, in the conception adopted in this work, as a corporate actor, must be in accordance with the socioeconomic and political context in which the state is immersed (Skocpol, 1985). Thus, it can be assumed that the different socioeconomic contexts in Brazil, which shape the contexts of the health regions, influence state action, making it diverse according to the region, as was observed in the analysis. One of the forms of this direct influence would be tax collection and the available income for spending on health by municipalities that compose each health region, what may suggest that health regions showing lower average income have less public resources available for health expenditures, according to the association indicated in the analysis (Table 2).

The process of decentralization that occurred in Brazil after the democratization of the country, negatively affected small municipalities that had low capacity for action without the transfers from other spheres. Therefore, there is a need for effective mechanisms to reduce regional inequality, where the federal government must play a fundamental role (Abrucio, 2006). The final result of the distribution of public health spending across the national territory, considering intergovernmental transfers, is that it is still associated with the average income of the region, in a non-egalitarian and even less equitable way (Table 1 and Figure 2).

Using the notion proposed by Rueschemeyer and Evans (1985) on coordination and coherence of State action among its subunits, it is important to point out that, given the decision-making autonomy of both states and municipalities that exists in Brazil, a cohesive state action is rare. In the context of UHS, this can be translated by joint decision-making mechanisms, for example through collegiate power sharing, not yet consolidated in the area of intergovernmental agreements (Santos; Campos, 2015). The current regionalization of the UHS constitutes an ongoing process set in motion in 2011 (Brasil, 2011). So, the system is still experiencing a learning period, on how to deal with the decision-making autonomies of each sphere to obtain a state action cohesive and consistent with its objectives. Thus, improving the capacity for joint decision-making between the three involved bodies can contribute to reduce inequalities in the provision of public actions and services to the population, making the poorer places less resource-poor.

Another point that can be included when analyzing the state action is the ability of the state to implement its objectives more or less effectively (Skocpol, 1985). Assuming as one of the objectives of the State in the field of health the minimum provision of actions and services to solve the health needs of the population of each health region, it can be considered that the capacity of the State to achieve the objective is associated with the geographic area and the level of income of the health region. This distorted provision is

seen as resulting from the way the health system was structured even before the institution of UHS. In general, the indicators of public expenditure allocation and service delivery by health regions show that the privileged areas are those that have historically concentrated greater provision of health services, according to a possible path dependence of the Brazilian system, in which the private sector has consolidated itself as a great service provider for the public system and as an actor in political decisions (Gerschman; Santos, 2006).

However, the distribution of the indicator of primary health care coverage among health regions, both from the perspective of the macroregions and from that of income levels, and corroborating with other results in the literature review, differs from that of other indicators for the health system and may represent a point of inflection in this path dependence line. Since primary health care coverage was conditioned by the guidelines of the Family Health Strategy and by the mechanisms for equal financial transfers of the PHC Plan, it is suggested, according to the trends found in the results, that it has a distribution favorable to locations with higher needs and, so, it would be more equitable. Therefore, it is noticed that the state action in the scope of the UHS can appear as an incoherent form and with different capacities to realize its objectives. This aligns with the conception of Rueschemeyer and Evans (1985) for whom the State ends up being the expression of several simultaneous and contradictory tendencies and its capacity for coherent action is a construction conditioned by factors both internal and external to it.

If the state is also given the objective of equitable distribution (or even egalitarian, as in the Federal Constitution of 1988) of public resources within the scope of the UHS, one can reflect on its autonomy (Skopol, 1985) to achieve this objective. The UHS, as a legal institution itself, in a period of reform that reduced the size of the state, and its maintenance for almost 30 years, may be a sign of its autonomy in order to reinforce the continuation of the health system with universal and egalitarian principles. This process is

affected, however, by the trajectory of the constitution of the system that privileged the services provided by the private sector. Even if they obtain results different from those officially sought, influenced by interests conflicting with those of the State, these results are contradictory, depending on the type of health care - such as primary health care coverage in relation to other services - and the geographical location - the southern macroregion, for example, has better distribution indicators and no large gaps in care.

Conclusion

In this study, I demonstrate the magnitude of the differences that exist in terms of the provision of health services and professionals by the State among the health regions in Brazil. The description of how the State intervenes in the area of health with regard to public health expenditure, structure and UHS professionals provision and coverage across health regions in Brazil pointed to privileging macroregions South, Southeast and, depending on the variable, Center-West, except for the indicator of primary health care coverage. These distortions in state provision indicate that although the UHS guidelines affirm the need to ensure equity, there is evidence that richer regions have both better health levels and more health services available, as well as more public resources allocated to their inhabitants.

On the other hand, the pattern of distribution of the indicator of primary health care coverage among health regions, both from the perspective of the macroregions and from the level of income, and corroborating with other findings in the literature, differ from the standard of the other indicators of the health system. This difference may represent a turning point in the way this level of care was structured in Brazil and how the Family Health Strategy policy was conditioned by other guidelines in relation to the rest of the system. According to tendencies observed, its distribution favors localities with greater needs and, therefore, presents a greater tendency for equity. However, it is suggested that future studies further investigate what are the effects of

such differentiation on the type of healthcare prevalent in the region according to the level of income.

It is observed that the action of the Brazilian State in the field of health tends to act in a contradictory way and with different levels of capacity and autonomy to reach its objectives (Skocpol, 1985; Rueschemeyer; Evans, 1985). One can identify as possible questions that explain such unequal distribution of resources among health regions, the influence of the socioeconomic context of each locality, the role of each federative entity in the distribution of resources and joint decision-making mechanisms, the decentralization process and regionalization in the scope of UHS and the trajectory previous to the UHS of the Brazilian system that historically privileged some population groups and regions to the detriment of others.

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