Brazilian Private Health System: History, Scenarios, and Trends

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Abstract

Background: Health care is a complex economic and social system, which combines market elements and public and social interest. This combination in Brazil, like systems in China and America, is operationalized through the public and private system. The sector represents approximately 9% of the country's GDP, of which 56% is privately sourced and 44% is of public origin. In the private sector, supplementary health includes a structure with 711 hospital medical health plan operators, 47 million beneficiaries and revenues of US$30 billion a year.

Methods: Therefore, this research describes and analyzes the complementarity of Supplementary Health before the Brazilian Unified Health System, highlighting its main characteristics, scenarios, and trends in the face of the health system and the Brazilian market. This descriptive and exploratory research uses secondary data from various sources, submitted to quantitative data analysis methods. The object of the research is the history of supplementary health in Brazil and its main actors.

Results: The data are organized into three groups, each with its approach of collection and analysis. Thus, it is perceived as the notorious growth of large operators, to the detriment of operators with a lower concentration of beneficiaries; the increasing concentration of the market through mergers and acquisitions promoted by large publicly traded corporations, especially in regions with a lower rate of supplementary health coverage; and the growth of the sector through business plans, whose central characteristic is the dependence on the country's employability rate.

Conclusions: It is possible to perceive an intense trend of concentration of Brazilian supplementary health in large institutions that have capitalized and have a great appetite for growth through mergers and acquisitions, whether from smaller operators or health institutions that integrate their health networks, following complementary health models already consolidated in countries such as China, and the United, among others. This concentration projects a market with fewer options and competitiveness, reduction in transaction costs and operational effectiveness of care.

1. Introduction

Brazil is a country of continental dimensions, with a territory of 8.5 million square kilometers and a population of 211 million people, being the sixth most populous country on earth [3]. Its health system comprises the state's performance through the Unified Health System, and the private initiative, operating in the so-called supplementary health system [20].

Since the 1990s, many efforts have been devoted to health care in Brazil by public or private means. Although the efforts are commendable, the country presents many challenges in the area of health [31] owing to the intense socioeconomic inequality present in the country [14, 23, 31]. This can be verified by the degree of income concentration, also known as a measure of inequality, the Gini index of 50.9 [3, 14], a value measurement of countries such as Zambia (57.1) [43] and Zimbabwe (50.3) [43].

Similar to the challenges of the Canadian [45] and American systems [47], the Brazilian health system is formed by a complex and challenging network of health service providers and buyers [12], all with intense challenges of promoting an adequate cost-effectiveness ratio in health [24, 25].

With the public and private actors, the Brazilian health system is divided into three sectors: public, private, and supplementary health1. The public sector comprises state funding; the private sector is financed by public and private resources, mostly for profit, and the supplementary health comprising different modalities of insurance and private health plans [1]. Table 1 describes the main characteristics of each of the members of the health sector in Brazil.

| Description       | Public                     | Private                                |
|-------------------|----------------------------|----------------------------------------|
| System            | Unified Health System      | Supplementary Health                   |
| Main Regulatory Body | Ministry of Health          | National Agency for Supplementary Health |
| Funder            | Union, States and Municipalities | Individuals and Legal Entities of a Private Nature |
| Service Provider  | Public and Private Entities | Private Entities                       |
| Year Regulation   | 1988                       | 1998                                   |
| Coverage          | Universal                  | Consumers                              |

Historically, private, and supplementary health systems have been stimulated by a series of government policies, either through the accreditation of services, and the remuneration and creation of hospital units among others [13]. A historical difference is presented in the financing of these two systems: the private system engages with public recourse as it can provide services to the Unified Health System; however, supplementary health is predominantly focused on health care for workers in public and private companies [1].

The health sector in Brazil represents approximately 9% of the GDP [14, 16], of which 56% has a private and 44% has a public origin [14, 17]. The health sector employs 4,418,871 [16] people and comprises a structure with 711 hospital medical health plan operators [2], 256 dental plan operators
[2] and 6,642 hospital units [15] among others.

The Unified Health System, created from the Federal Constitution of 1988 [14], is based on the principle of health as a citizen’s right and duty of the state1. Currently, approximately 75.5% of the Brazilian population is served solely and exclusively by the Public System [30], which, despite its historical achievement in scope and access, suffers strongly owing to chronic underfunding [14, 23].

The other 24.5% of the population have access to health through supplementary health [2], which is strongly linked to the care of people through individual or family contracts (19%), business (68%) and collective (13%) [2].

Private performance in Brazilian health has intensified since 1964, after the military coup, when a series of reforms drove the expansion of the private health system. Since then, a series of historical events have fostered private performance in the health sector, leading to a significant expansion of the provision of health services through private health plans [1], as described in Table 2 below:

| Period       | Event Description                                                                 |
|--------------|-----------------------------------------------------------------------------------|
| 1500–1822    | Creation of hospital structures - Santas Casas [6]                                |
| 1897         | Creation of the General Directorate of Public Health [7]                          |
| 1889–1930    | Start of health care and social security system [7]                                |
| 1933–1938    | Extension of social security to most workers in urban areas [8]                    |
| 1953         | Creation of Ministry of Health [1]                                                |
| 1950–1960    | Beginning of the first medical entities providing services financed by companies, with service predominantly focused on industrial workers [5] |
| 1964         | Initial development of private health companies (Decree-Law 200) [5]               |
| 1964         | Expansion of hospital structures [1]                                              |
| 1964–1988    | Crisis in the health system and social security                                   |
|              | Expansion of the health system by private means [1, 9]                            |
| 1988         | Decentralization of the Health System [10]                                        |
| 1990         | Creation of the Unified Health System (Law 8,080 and 8,142) [14]                  |
| 1996         | Creation of the Provisional Contribution on Financial Transactions [10]            |
| 1998         | Regulation of private health plans [10]                                           |
| 1999         | Creation of the National Health Surveillance Agency [10]                          |
| 1999         | Beginning of private equity practice in private health companies [4]              |
| 2000         | Creation of the National Agency for Supplementary Health (Law 9,961) [10]          |
| 2000         | Definition of health financing responsibilities - Constitutional Amendment 29 [10]|
| 2001         | Psychiatric Reform Law [10]                                                      |
| 2004         | Start of capital opening of Brazilian health companies [4]                        |
| 2006         | Pact for Health [10]                                                             |
| 2006         | Creation of the National Primary Care Policy and the National Health Promotion Policy [10] |
| 2008         | Creation of 24-hour Emergency Care Units [10]                                     |
| 2011         | Creation of Private Plan Operators Program - ANS Resolution 277 [2]               |
| 2019         | Minimum Governance Practices - ANS Resolution 443 [2]                             |

Currently, supplementary health is regulated and supervised by several government and organized civil society institutions and forums such as the Supplementary Health Council [21], National Supplementary Health Agency [2] and Supplementary Health Chamber [22]. Its operation takes place through health plan operators, which are assigned to manage, market, and provide health plans, with the purpose of medical, hospital and dental care to their beneficiaries [21].
As of December 2020, there were 47,631,224 supplementary health users [2], assisted by 711 hospital medical operators [2], with revenues of 30.4 billion (US$). Table some of the main data of the sector and its respective representation in the Brazilian context.

### Table 3
General data on the representativeness of Supplementary Health in Brazil

| Description                                                                 | 2010         | 2020         |
|----------------------------------------------------------------------------|--------------|--------------|
| Health Spending (% of GDP) [14, 16]                                       | 8.3          | 9            |
| Proportion spent on Private Health (%)[14, 17]                            | 54.2         | 56.07        |
| Proportion spent on Public Health (%) [14, 17]                            | 45.8         | 43.93        |
| Coverage Rate on Private Health Plans (%) [2]                             | 22.3         | 24.5         |
| The Hospital Medical Organization (Unit) [2]                              | 1,045        | 711          |
| The Dental Organization (Unit) [2]                                        | 374          | 256          |
| Assets of Supplementary Health Entities (US$ - Billions) [21]             | $11,764.71   | **$21,323.53**|
| Supplementary Health Programs (Users) [2]                                 | *44,937,350  | 47,615,162   |
| U-files of individual or family plans (Users) [2]                         | *9,560,381   | 9,043,414    |
| Users of Business Plans (Users) [2]                                       | *28,877,931  | 32,192,328   |
| U-kind Collective Plans (Users) [2]                                       | *6,643,512   | 6,308,420    |
| Users of Unidentified Plans (Users) [2]                                   | *943,990     | 71,000       |
| And Direct Jobs in Health (People) [16]                                   | -            | 4,418,871    |
| And Direct Jobs in the Private Health Sector (People) [16]                | -            | 3,429,759    |
| And Direct Jobs in the Public Health Sector (People) [16]                 | -            | 989,112      |
| Revenue from Private Operators Payouts (US$) [2]                          | $15,592,201,463.79 | $30,498,100,687.32 |
| Operator Assistance Expenses (US$) [2]                                   | $12,658,972,366.36 | $22,090,892,703.13 |
| Operator Administrative Expenses (US$) [2]                               | $2,427,299,367.83 | $2,886,992,082.35 |
| Operators’ Business Expenses (US$) [2]                                   | $504,765,502.02 | $961,252,886.21 |
| Hospital Structures (Units) [15]                                          | 6,907        | 6,642        |
| Hospital Beds Brazil (Unit) [15]                                          | 435,793      | 404,770      |
| Private Hospital Beds (Unit) [15]                                         | 295,463      | 254,982      |
| Beds per Thousand Inhabitants (Thousand Inhabitants) [15, 18]            | 2.23         | 1.91         |

*2011 **2016

In view of the initial presentation of the sector and the notorious importance of Supplementary Health in the Brazilian context, the objectives, methods, results, discussions, and conclusions of the research are presented below.

### 2. Objectives

The main objective of this study is to understand the general and specific context of Brazilian supplementary health, its scenarios, and trends, with emphasis on the analysis of market concentration and recent processes of mergers and acquisitions.

### 3. Methods

*Study design and technical aspects of research*

This research is described as descriptive and exploratory, with the use of secondary data from various sources submitted to quantitative data analysis methods. The object of the research is the history of supplementary health in Brazil, as well as its main actors. The data are organized into three groups, each with its approach to collection and analysis, as shown in Table 4 below:
Table 4
General framework of research methods

| Group                              | Source data                  | Data Type                              | Form of Analysis                       |
|------------------------------------|------------------------------|----------------------------------------|----------------------------------------|
| Historical and regulatory documents| Sites and reference searches | Documents and laws                     | Descriptive documentary analysis        |
| Industry Data                      | Industry data repository sites| quantitative                           | Quantitative data analysis             |
| Market                             | M&A Data Repository Sites    | Quantitative documents and data        | Descriptive analysis and network analysis |

The first group of ‘Historical and Regulatory Documents’ plays an important role in the research, as it allows the identification and analysis of the relevance and history of the supplementary health sector in the Brazilian context.

The second group called “Sector Data” presents a descriptive statistical analysis and explains the historical series of evolution of the sector, as well as the measurement of the indices of market concentration IHH - Herfindahl-Hirschman (1) and RC5 - Concentration Ratio of the five largest [28] role players, adapted to the supplementary health sector, according to equations below:

\[
IHH = \sum_{i=1}^{n} \frac{\text{Beneficiary Amount}}{\text{Total Supplementary Health Beneficiaries}}
\]

\[
RC5 = \sum_{i=1}^{5} \frac{\text{Beneficiary Amount of the Five Largest Volume}}{\text{Total Supplementary Health Beneficiaries}}
\]

The resulting analysis of the IHH and RC5 assume values between 0 (no market concentration) and 1 (total market concentration). For analysis and interpretation, the scale of the credit market analysis was adapted, where estimates between 0.10 and 0.18 represent moderate concentration and, above 0.18, high market concentration.

The third group, ‘market’, presents an analysis of relational networks through the Software UCINET4, version 7.724. From the elaboration of the adjacency matrix, the analysis of the patterns of interactions of processes of division, incorporation, and mergers between entities of health legal entities was elaborated, with graph theory analysis based on the identification of health plan operators that appear as buyers or sellers, in the period from 2018 to 2020. This analysis methodology uses graphs to be analyzed descriptively and square or rectangular matrices, also known as socio matrices (X). The matrices allow the visualization of relationships and patterns that would hardly be perceived in the sociograms of points and lines. In the matrices, the rows (g) represent the sent links, while the columns (h) represent the received links or (j). The links sent and received have important implications for the calculation of local and global centrality degrees and in the identification of subgroups in the network. The notation for representation of a socio matrix can be expressed in (3).

\[
X - g \times h
\]

The data sources for identifying the operations of mergers and acquisitions, from data mining on sites specializing in them totaling 196 sources can be consulted through Appendix A.

4. Results

Health Plan operators operate through more than one corporate typology of a legal entity, called "modalities" [2]: group medicine (40%), medical cooperatives (36%), health insurers (13%), self-management (9%) and philanthropy (2%). These organizations establish contracts for the provision of health services with their beneficiaries, protecting their users from the direct cost linked to the risk of falling ill and observing the principle of mutualism [20]. Figure 1 shows that little has changed in the quantitative percentage of the modalities in the last 10 years:

The operators relate to their beneficiaries through contracts, with the predominance of contracts linked to companies through the so-called "collective business" plans, a fact that is repeated in all regions of the country. Interestingly, this type of contract is related to the level of employability of the country; therefore, it suffers more severe oscillations in a volatile economic system such as the Brazilian system. Table 5 shows the quantitative distribution of each of the contract modalities and their geographical distribution in the country regions.
Table 5
Distribution Types of Plans by Regions in Brazil 2020 [30]

| Type of hiring                  | North     | Northeast | Southeast | South     | Central West | Unidentified | Total       |
|--------------------------------|-----------|-----------|-----------|-----------|--------------|--------------|-------------|
| Corporate collective           | 1,128,874 | 4,001,832 | 20,128,894| 4,604,834 | 2,314,606    | 28,261       | 32,207,301  |
| Individual or family           | 391,840   | 1,755,343 | 5,084,947 | 1,264,072 | 537,884      | 4,299        | 9,038,385   |
| Collective by adhering         | 235,715   | 820,018   | 3,767,746 | 1,021,740 | 464,381      | 4,701        | 6,314,301   |
| Uninformed                     | 3,064     | 10,354    | 48,928    | 4,663     | 3,799        | 1            | 70,809      |
| Unidentified collective        | 0         | 77        | 338       | 13        | 0            | 0            | 428         |
| Total                          | 1,759,493 | 6,587,624 | 29,030,853| 6,895,322 | 3,320,670    | 37,262       | 47,631,224  |

Regarding the size of health plan operators, there was a significant reduction in their number, from 1,045 institutions in 2011 to 711 in 2020 [2]. This evidence is confirmed by analyzing the data in Table 6, which shows a growth of 29% in the number of beneficiaries linked to operators that have more than 500,000 beneficiaries, with a decrease in all other groups, whose intensity of decrease is in smaller operators, reaching 57% decrease in institutions with 2,001 to 5,000 beneficiaries.

Table 6
Grouping of beneficiaries and Horizontal Analysis (2011–2020) [2]

| Grouping               | 2011        | 2020        | HA  |
|------------------------|-------------|-------------|-----|
| Over 500,000 beneficiaries | 17,600,739 | 22,715,394 | 29% |
| 100,001 to 500,000 beneficiaries | 12,276,731 | 11,704,100 | -5% |
| 50,001 to 100,000 beneficiaries | 6,410,403 | 5,669,947 | -12% |
| 20,001 to 50,000 beneficiaries | 5,567,096 | 4,682,160 | -16% |
| 10,001 to 20,000 beneficiaries | 2,482,548 | 1,761,421 | -29% |
| 5,001 to 10,000 beneficiaries | 1,080,166 | 757,635 | -30% |
| 2,001 to 5,000 beneficiaries | 451,840 | 271,783 | -40% |
| 1,001 to 2,000 beneficiaries | 110,730 | 47,105 | -57% |
| 101 to 1,000 beneficiaries | 44,755 | 21,370 | -52% |
| 1 to 100 beneficiaries | 806 | 309 | -62% |

Table 7 shows an intense increase in the last 10 years in the general concentration of the supplementary health market, from an RC5 index of 0.22 in 2011 to 0.29 in 2020, reinforcing the hypothesis of an increase in market concentration, which is intense, following the trends of countries such as China [46] and the United States [48].

Table 7
Historical Series Beneficiaries and RC5 (2011–2020)

| year | Total Benefit2 | RC5 |
|------|----------------|-----|
| 2011 | 46,025,814     | 0.22|
| 2012 | 47,846,092     | 0.23|
| 2013 | 49,491,826     | 0.24|
| 2014 | 50,531,748     | 0.27|
| 2015 | 49,279,085     | 0.27|
| 2016 | 47,648,903     | 0.27|
| 2017 | 47,111,682     | 0.27|
| 2018 | 47,121,811     | 0.28|
| 2019 | 47,058,415     | 0.28|
| 2020 | 47,631,224     | 0.29|
By analyzing the RC5 index of the regions of Brazil, it is possible to understand that the continental dimensions of the country raise extremely different realities, although all demonstrate the increase in market concentration if we compare the years 2011 and 2020. The north and northeast regions of the country show an intense market concentration (0.58), with indicators that exceed the scale of 0.50, that is, more than half of the beneficiaries are concentrated in the largest five operators of these regions. The southern region has greater market dispersion, in addition to the lower variability in the period (2011–2020). Its RC5 index had a result of 0.26 in 2011 and 0.27 in 2020, as shown in Fig. 2.

| Region     | Population Region [3] | Supplemental Health Users Quantity [2] | % Supplementary Health Coverage | RC5 (2011) | RC5 (2020) |
|------------|-----------------------|---------------------------------------|--------------------------------|------------|------------|
| North      | 18,672,591            | 1,759,493                            | 9%                             | 0.52       | 0.58       |
| Northeast  | 57,374,243            | 6,587,624                            | 11%                            | 0.36       | 0.58       |
| Southeast  | 89,012,240            | 29,030,853                           | 33%                            | 0.27       | 0.36       |
| South      | 30,192,315            | 6,895,322                            | 23%                            | 0.26       | 0.27       |
| Central West | 16,504,303          | 3,320,670                            | 20%                            | 0.36       | 0.39       |
| Brazil     | 211,755,692           | 47,593,962                           | 22%                            | 0.22       | 0.29       |

Table 8 illustrates the 10 largest institutions operating in the Brazilian supplementary health system, as well as the resulting HHI in 2011 and 2020. The stability of the institution called Bradesco Saúde (0.07) is perceived in the leadership of the IHH, with intense growth in the period of analysis of the publicly-traded company called Notre Dame Intermédica Health (0.07). Two institutions deserve special attention when analyzing the indicator of horizontal analysis, Hapvida Medical Care (0.06) with growth of 140% and São Francisco Health Systems (0.02) with growth of 425% in the analysis period.

| Private Health Plan Operator                  | Beneficiaries Quantity 2011 | IHH 2011 | Beneficiaries Quantity 2020 | IHH 2020 | HA  |
|-----------------------------------------------|-----------------------------|----------|-----------------------------|----------|-----|
| Bradesco Health S.A.                          | 2,988,834                   | 0.07     | 3,277,018                   | 0.07     | 10% |
| Notre Dame Intermédica Health S.A.            | 2,140,143                   | 0.05     | 3,241,622                   | 0.07     | 51% |
| Amil International Medical                   | 2,624,621                   | 0.06     | 2,893,453                   | 0.06     | 10% |
| Hapvida Medical Care                          | 1,134,584                   | 0.03     | 2,721,072                   | 0.06     | 140%|
| South America Cia Health Insurance            | 1,279,444                   | 0.03     | 1,858,761                   | 0.04     | 45% |
| Unimed National Central                      | 1,168,769                   | 0.03     | 1,808,907                   | 0.04     | 55% |
| Unimed - Belo Horizonte                       | 971,061                     | 0.02     | 1,297,348                   | 0.03     | 34% |
| San Francisco Systems and Health              | 146,728                     | 0.00     | 770,029                     | 0.02     | 425%|
| Unimed-Rio Cooperativa Médica                 | 774,619                     | 0.02     | 736,615                     | 0.02     | -5% |
| Caixa de Assist. dos Funcionários             | 693,620                     | 0.02     | 634,214                     | 0.01     | -9% |

Table 9 identifies the predominance of acquisitions by health plan operators, focused on other health plan operators (27) or hospitals (18), thus promoting market concentration and service delivery through their hospitals.

| Assets Acquired by Supplementary Health Operators | Number of Operations |
|-------------------------------------------------|----------------------|
| Health Plan Operators                           | 27                   |
| Hospitals                                       | 18                   |
| Benefits Administrator                          | 3                    |
| Miscellaneous (Clinics, Brokers, Laboratories and Technology Companies) | 4 |
According to Table 10, health plan operators were predominantly sold to other health plan operators (27), with few events of selling operators to hospitals (6).

| Typology of Buyer Entities | Number of Operations |
|----------------------------|----------------------|
| Health Plan Operators      | 27                   |
| Hospitals                  | 6                    |
| Diagnosis                  | 2                    |
| Miscellaneous (Clinics, Brokers, Laboratories and Technology Companies) | 3 |

According to Fig. 3, among the five main health entity asset buyers in the periods 2018 to 2020, two are health plan operators. Hapvida Health Care and Notre Dame Intermédica with 19 and 22 operations respectively, stand out as they both are publicly traded in the Brazilian market.

By observing the totality of mergers and acquisitions in the health sector in Brazil, from 2018 to 2020, as shown in Fig. 4, we can observe the relevant degree of centrality of operators that appear as buyers of assets in the market (black), which represent a relevant growth of their operations through mergers and acquisitions, a variable that helps in the analysis of the quantitative decrease of active operators in the market. However, the operators sold in the period present themselves in green, with a relational link with their buyer, represented by the black arrow.

As shown in Table 11, some operators are especially prominent in mergers and acquisitions in the period demonstrated. Among them, there is the institution Notredame Intermédica, being the third institution with the highest degree of total centrality in the private health market (22.0), followed by Hapvida in fourth place (19.0), and Qualicorp in seventh place (7.0), all publicly trading on the Brazilian stock exchange.

| n. | Name of The Institution | Degree of Centrality | Operation Category |
|----|-------------------------|----------------------|--------------------|
| 1  | Rede D’Or               | 30.0                 | Hospital           |
| 2  | Dasa                    | 23.0                 | Diagnosis          |
| 3  | Notredame Intermédica   | 22.0                 | Health Plan Operator |
| 4  | Hapvida                 | 19.0                 | Health Plan Operator |
| 5  | Afya Educational        | 9.0                  | Medical Education  |
| 6  | Fleury Group            | 7.0                  | Diagnosis          |
| 7  | Qualicorp               | 7.0                  | Health Plan Operator |
| 8  | Athena/Homeland         | 5.0                  | Hospital           |
| 9  | Hypera Pharma           | 4.0                  | Pharmaceutical     |
| 10 | Sabin                   | 4.0                  | Diagnosis          |

Table 12 shows the main characteristics of the 10 main hospital medical supplementary health operators in Brazil, which together concentrate more than 19 million beneficiaries [2].
The obvious concentration of the market in fewer operators and the absence of change in the overall number of beneficiaries creates "giants" in the market. Among them, the market leader in 2020, with an HHI of 0.07 and growth of 10% in the period 2011 to 2020 is Bradesco Health, whose growth strategy is strongly focused on common shares, making little use of growth via mergers and acquisitions in the years 2018 to 2020, with a centrality degree of only 1.0.

Although Bradesco Health leadership is solid throughout the period 2011–2020, the massive mergers and acquisitions operations of the operators Notre Dame Intermédica and Hapvida Health Care, both publicly trading on the Brazilian stock exchange, have been demonstrating relevant results and contributing intensely to the market concentration. Its HHI of 0.07 and 0.06 and centrality level of 22.0 and 19.0 respectively, demonstrate their appetites for growth support through mergers and acquisitions that focused on other health operators and hospitals.

By more careful analyses, some of the data from the 10 main supplementary health institutions in the country can be evidenced as different strategies of growth and market positioning in their corporate structures, volume of beneficiaries, average billing ticket, spending structure, value of their assets, HHI, degree of centrality, loss, and supplementary health performance index. Although the numbers are impressive, market interaction strategies are different, which will lead us to futile different performances in future individual analyses, with an apparent and inevitable growth of mergers and acquisitions operations.

Finally, it is worth highlighting the particularity within Brazilian supplementary health of the cooperative system called Unimeds, founded in 1975, as one of the largest health cooperatives in the world [52]. It has 270 supplementary health operators with a total of 17,707,733 beneficiaries. Together they have an HHI of 0.37, representing the highest concentration of the Brazilian market with a growth of only 3% of the number of beneficiaries in the period from 2011 to 2020.

### 5. Discussion And Conclusion

Health care is a complex economic and social system [26], which combines market elements of public and social interest in a single environment. This intriguing combination in Brazil, like the Chinese [46, 47] and American [48] systems, is presented through the public and private system, with the great challenge of providing access and health care for all Brazilian citizens.

The representativeness of health in the face of human existence and care and the economy are notorious, as perceived in the Canadian territory [45]. However, in Brazil, the challenges in the search for alternatives that promote a problem-effective discussion are emerging and endowed with many vulnerabilities. As the representativeness of the sector, before the economy, is on the scale of 9% of the GDP, employing more than four million people, the investment in intelligence from the previous history is urgent, either by access and quality of health care or by economic importance.

In this sense, describing and analyzing the complementarity of Supplementary Health before the Unified Health System in history can help guide health scenarios and trends in Brazil. Based on this contribution, this research objectively and clearly demonstrates the main historical assumptions of Brazilian private health, enabling the essential perception of complementarity between the public and private health care systems.

This provocation currently directly interferes with 24.5% of the country's health demand, which makes about $30 billion a year. Of this, approximately 74% is reinvested in spending on their health care through a decreasing number of operators (71), with historical stability of total beneficiaries, increasingly converted to business plans (70%), this being the only modality in full growth in the last 10 years of the market. Importantly, the
dependence of this type of contract, the performance of employability of the country, and the maintenance of contracts depend directly on the capacity of the country to generate employment and income.

Notoriously, the growth of large operators, institutions with a concentration of more than 500,000 beneficiaries, show an increase of 29% in the years 2011 to 2020, to the detriment of operators with a lower concentration of beneficiaries, which present as percentage degrowth in any scale in this period. The market concentration in large operators can also be evidenced by the exponential increase of the RCS indicator from 2011 (0.22) to 2020 (0.29).

This reality is more pronounced in the regions of the country with the lowest rate of supplementary health coverage, reaching 0.58 in 2020 in the north (9% supplementary health coverage) and northeast (11% supplementary health coverage) and is less accentuated in the southern region (0.27), whose supplementary health coverage is 23%.

Therefore, it is possible to perceive an intense trend of concentration of Brazilian supplementary health in large institutions that capitalized on and have a great appetite for growth through mergers and acquisitions, whether from smaller operators or health institutions that integrate their health care networks, following complementary health models already consolidated in countries such as China [46, 47], and the United States [48], among others.

This concentration projects a market with fewer options and competitiveness that can lead to a concentration of risks, raising potential frequencies of isolated failures according to user experience. However, according to health operators, they lead to a decrease in transaction costs and the operational effectiveness of care. These hypotheses are still fragile in the literature applied to the private health sector and, therefore, they figure only as one of the most varied scenarios to be considered. Another important factor to be considered is the analysis of this scenario in countries of continental dimensions such as Brazil, which may present specific particularities concerning health, whether public or private, in its different regions, this favors exponentially the trend of market concentration growth, by an even greater flow of M&A operations, favored by the growing number of entities in the sector, listed on the stock exchange.

Finally, similar to the American model [48], the complementarity of Brazil’s understanding of supplementary health is worth highlighting, as it contributes to the access and qualification of health care, safeguarding premises of cost-effectiveness, quality, humanization and access to health, emphasizing the role of regulatory agencies in the sector, in the improvement of governance tools that guarantee the rights and duties of all stakeholders [49] from an integrated view of health, avoiding its eminently mercantility [51].

Declarations

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**Figures**
Figure 1

Distribution of Private Health Plan Operators - Medical Care (2011-2020) [2]

Figure 2

Supplementary Health Coverage and RC5 by Brazilian Region (2011-2020)
Figure 3

Main buyer entities (2018-2020)

Figure 4

Sociogram of mergers and acquisitions in the Health sector (2018-2020)