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Financing of health and the fiscal dependency of Brazilian municipalities between 2004 and 2019

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Abstract *This article describes the evolution of municipal financing of the Unified Health System, from 2004 to 2019, considering revenues and expenses from own and non-own sources, analyzes fiscal redistribution, according to population size and average household income, and compares this evolution in two periods, characterized as economic growth (2004-2014) and recession (2015-2019). The study was based on data from the Information System on Public Health Budgets. There was real growth in municipal spending on health from 2004 to 2014 (156.3%), with a drop between 2014 and 2015, followed by a recovery between 2015 and 2019. During the recession period, there was an overall increase in the fiscal dependence of municipalities, indicated by the increase in non-own revenues, even with the decrease in the Federal Government participation in transfers. The growth of own health expenses was lower among municipalities with lower household income, while for non-own expenses it was higher in municipalities with a smaller population size. In short, the results indicate a process of increasing municipal spending on health, as well as the increased fiscal dependence of municipalities to fund health, intensified after the 2015 crisis, which especially affected small and lower income municipalities.*

Key words *Health System Financing, Public Health, Fiscal Policy, Economic Recession, Brazil*

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Introduction

Health systems must correspond to financing models that enable the realization of their principles. Thus, it is understood why the Unified Health System (SUS - *Sistema Único de Saúde*), which proposes universality, is financed by taxes paid by all Brazilians, under the shared responsibility of the Union, states, and municipalities[1].

Federalism in Brazil aims at decentralization and fiscal redistribution to ensure equitable financing capacities for public services, although problems in the current tax system do not allow this demand to be met satisfactorily[2].

The resources allocated to the SUS by the federal government come mainly from taxes that feed the Social Security Budget (OSS - *Orçamento da Seguridade Social*), involving Social Security and Social Assistance, in addition to Health. Law No. 8,080/1990 established a decentralized model for transferring federal resources to the subnational government spheres via the National Health Fund (FNS - *Fundo Nacional de Saúde*), considering, in theory, the demographic and epidemiological profile and the installed capacity of the health services network in each municipality and state[3]. In the municipal and state spheres, health services and actions are financed with resources coming from own collection (proprietary) – which involves local tax collection or the receipt of obligatory transfers from the Union and the states – and by non-proprietary revenue – which involves voluntary transfers and agreements[1].

Throughout the 1990s, recurrent fiscal adjustments redesigned the solidarity federative organization and the budgetary binding of the OSS, with a focus on redirecting resources to financial expenditures and increasing the margin for fiscal renounces to the detriment of primary expenditures[4]. These measures of economic orthodoxy in search of fiscal balance have meant, in practice, the recentralization of revenues by the Union, going against the decentralizing process initially proposed[2].

Since its creation, the SUS has lacked constitutional provisions that guarantee the link between revenues and applications in health, a problem temporarily handled by the institution of the Provisional Contribution on Financial Transactions (CPMF - *Contribuição Provisória sobre Movimentação Financeira*) in 1997. Only with the enactment of Constitutional Amendment (EC - *Emenda Constitucional*) No. 29/2000, the SUS obtained a solid budgetary basis, by establishing minimum mandatory amounts for application related to the budgets of the states and the Federal District (12%), the municipalities (15%), and the Union - subsequently corroborated by Supplementary Law (LC - *Lei Complementar*) No. 141/2012[5].

By forcing states and municipalities to commit greater portions of their budgets to the SUS, EC No. 29/2000 contributed to the decentralization of spending by increasing the proportional participation of these subnational powers, tensing the centralizing scenario of the 1990s, in which the Union was responsible for 73% of all health expenditures, while states participated with 15% and municipalities with 12%. In 2010, federal participation was reduced to 44.7% of total spending, with 26.7% participation by states and 28.6% by municipalities[1].

However, EC No. 29/2000 had limitations when it did not specifically define the sources of revenue, only the amounts of expenses. Moreover, noncompliance with this EC and impunity in the face of this crime of fiscal responsibility were also factors that limited the effectiveness of the provision[6]. The health budget binding rule applied to the Union, related to the growth of the Gross Domestic Product (GDP) and not to a minimum percentage of the general budget as in the case of the other spheres of government, limited the possibility of substantial increases in SUS investments. Thus, in the first decade of 2000, the Ministry of Health (MOH) budget was limited to only 5% of the effective federal budget expenditure and less than 17% of the total OSS[5,7]. As a proportion of GDP, federal spending on health declined, between 1994 and 2005, from 1.94% to 1.76%[8].

Thus, even with EC No. 29/2000, critics point to the need to improve the system of tax distribution and application, since the chronic underfunding of the SUS has not been overcome. Moreover, it is necessary to propose devices that reduce interregional inequalities and allow greater intergovernmental collaboration[1,2,9].

During the following decade, Brazil went through a moment of remarkable economic and social development that enabled the expansion of social policies, public investments, and income redistribution, contributing to the expansion of SUS services coverage and causing a positive impact on the population's health[10].

From 2014 on, however, the economy began to stagnate, entering recession in 2015, with a significant increase in unemployment and a drop in tax collection[11]. Government policy, reaffirming the guiding principles of economic orthodo-

Ciência & Saúde Coletiva, 27(6):2459-2469, 2022

xy in the attempt at fiscal adjustment, has been predominantly contractionary, with a reduction in public investment in several areas, and social programs such as social security, education, and health have not been spared from budget reductions[11-13].

Critics point out that this austerity, in practice, is more a reorganization of the social protection system aimed at serving private interests than a search for balancing the finances[11,13-15]. Even if other alleged austerity measures had already contributed to the dismantling of the constitutional right to health, the most poignant was the approval of EC No. 95/2016[16], which froze, in real terms, the Union's primary expenses, imposing a spending cap for 20 years, and which untied health and education expenses in relation to revenues (repeal of EC No. 86/2015). It is noteworthy that this is the strictest austerity measure in the world, considering that countries with more serious fiscal problems have adopted milder measures, for a shorter period[17].

This conjuncture of fiscal austerity, associated with the historical characteristics of Brazilian federalism and the growing socioeconomic inequalities since the crisis period, creates a complex situation in which the relationship between the federative entities may deteriorate, with more intense disputes over resources[2].

Thus, analyzing the evolution of municipal health financing in the period between 2004 and 2019, which includes two distinct macroeconomic contexts, allows us to identify the degree of influence of the budget restriction promoted by a fiscal adjustment on the relationships between federal entities. Given that municipalities are the main implementers of health policies, this study aimed, therefore, to analyze the budget behavior of municipalities and the changes in state and federal transfers over the period. Considering that the temporal evolution of health budgets must have varied among Brazilian municipalities, this study evaluates this evolution according to the population size and the average household income of the municipalities, which allows us to identify the existence of inequalities between municipalities of larger or smaller population size and of higher or lower income.

Methodology

This is a quantitative, analytical, and documentary study of the evolution of health financing in Brazilian municipalities from the period 2004 to 2019.

For each Brazilian municipality and for each year of the studied period, the following data were obtained from the Information System on Public Health Budgets (SIOPS - *Sistema de Informações sobre Orçamentos Públicos em Saúde*), made available by the MOH[18], with the following data: population, own revenue, participation (%) of own revenue in the total revenue of the municipality, and liquidated health expenditure. Based on this information, the total municipal revenue was obtained by the ratio between the own revenue and the participation of the own revenue in the total revenue. In addition, non-proprietary revenue was considered as the result of the subtraction between the total calculated revenue and own revenue. As for expenditure, data on the origin of resources (proprietary or non-proprietary) and the proportion of own resources applied in health according to EC No. 29/2000 were also collected.

Data on average *per capita* household income produced by the 2010 Census of the Brazilian Institute of Geography and Statistics (IBGE - *Instituto Brasileiro de Geografia e Estatística*) were accessed through TABNET/DATASUS[19] and were used for the purpose of categorizing the municipalities into quintiles. The municipalities were also categorized according to their population size based on standardized groups by IBGE: ≤5,000; 5,001-10,000; 20,001-50,000; 10,001-20,000; 50,001-100,000; 100,001-500,000; >500,000 inhabitants.

All absolute budget variables had their corresponding *per capita* values calculated for each municipality and were deflated to current December 2019 values by means of the National Wide Consumer Price Index (IPCA - *Índice Nacional de Preços ao Consumidor Amplo*) rates, for comparability purposes, performed by the official calculator of the Central Bank of Brazil (Citizen's Calculator)[20].

New municipalities created after 2004 were excluded from the analysis. Annual observations that had missing or null values registered for any of the expenditure or revenue fields were also removed, keeping only municipalities with complete information.

For *per capita* financial indicators, we calculated the annual national average among all municipalities and the average according to population size and income. To analyze the association between the annual variation in proprietary and non-proprietary *per capita* expenditure and population size or average household income *per capita*, a stacked panel data regression (pooled

model) was applied, adopting a significance level of $\alpha<5\%$.

Stata software (version 14) was used for data treatment and graph construction. Since this is a study that used secondary and public data, it did not require the approval of a Research Ethics Committee.

Results

Excluding from the study the ten municipalities created in the period, 88,960 observations were made corresponding to the annual financial data of 5,560 municipalities over the 16-year period. However, of these observations, 3,805 were excluded for having missing information related to the fields of revenues or expenditures, resulting, therefore, in 85,155 observations of municipal data covered in this study.

Revenue evolution

The *per capita* tax revenue of the set of municipalities increased 115.07% in the period, going from R$ 1962.6 to R$ 4221.1 between 2004 and 2019. However, there were two moments of negative inflection: one between 2008 and 2009 (-4.02%), and another between 2014 and 2015 (-6.96%), illustrated in Graph 1.

Breaking down this total revenue into its components, it can be observed that between 2004 and 2013, own revenue evolved similarly to total revenue, following the decline between 2008 and 2009 and resuming growth in subsequent years. However, given the 5.36% decrease between 2014 and 2015, the own revenue was practically stagnant between 2015 and 2017, with a decrease of 0.004% in these three years, no longer following the growth pattern of the total revenue. The total revenue then began to evolve similarly to the non -proprietary revenue, which sustained the financial recovery in subsequent years. In the period as a whole, this grew 240.9%, while proprietary revenues grew only 69.1% (Table 1). Moreover, the share of own revenues in the total budget of the municipalities was decreasing, from an average of 70.9% in 2004 to 64.9% in 2015, with a sharp decline in the next three years, closing the study period with an average share of 55.1%.

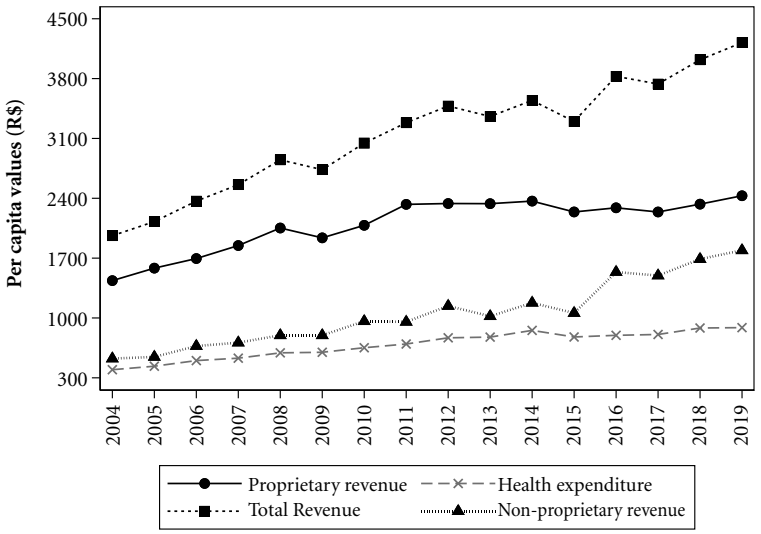
In relation to population size (Table 1), it was notable the greater relative growth of non-proprietary revenues in municipalities with smaller populations. This trend was also observed with own revenues, although not in percentage terms, but in absolute terms. On the other hand, the evolution of proprietary and non-proprietary revenues did not seem to be associated with the average family income quintile.

Evolution of expenditures

The total *per capita* spending on health in the municipalities followed the behavior of revenues in general and, more specifically, of own revenues. It grew from R$ 395.03 in 2004 to R$ 887.07. Between 2004 and 2014, there was a growth of 124.6%, with a drop of -9.0% between 2014 and 2015, followed by a recovery between 2015 and 2019 (14.0%).

Similarly, to the evolution of revenues, the share of expenses financed from non-proprietary sources grew more than the share financed from proprietary resources. Expenses financed with proprietary resources grew 101.2%, while those financed with non-proprietary resources increased 170.0% in the period. The participation of the different government spheres should be highlighted: in 2004, 36.6% of health expenditures were liquidated with resources from transfers from other government spheres - with the Union being responsible for 91.9% of these. In 2019, transfers settled 43.9% of health expenditures, with the Union being responsible for 87.1% of the total transferred, which represented a reduction in the Union's participation with a possible increase in the states' participation in transfers compared to the beginning of the period.

It was also verified that the municipalities have invested in health beyond the minimum determined by EC No. 29/2000. In fact, the average percentage application of own revenue in the municipal health system was almost six percentage points above the law, going from 15% to 20.7% between 2004 and 2019. It should be noted, however, that there were cases of less than regulated application (only 1.3% of observations between 2004 and 2019), concentrated especially in 2004 and 2005, where, respectively, 578 (13.44%) and 171 (3.27%) of the municipalities did not comply with the norm. In the following years, the number of irregular municipalities remained between a minimum of nine (0.16%) in 2017 and a maximum of 51 (0.96%) in 2012.



Graph 1. Evolution of financial indicators per capita (R$) of total revenue, proprietary, non-proprietary, and health expenditure of Brazilian municipalities, from 2004 to 2019.

Source: Research results obtained from SIOPS and IBGE data.

Table 1. Average health revenues and expenditures of Brazilian municipalities and their total percentage variation (TPV) from 2004 to 2019, according to population size and per capita household income.

Dimensions	Revenue				Health Expenditures			
	Proprietary		Non-proprietary		Proprietary		Non-proprietary	
	Average	VPT	Média (R$)	VPT	Média (R$)	VPT	Média (R$)	VPT
Brazil	2096.2	69.1%	1054.6	240.9%	432.5	101.2%	252.1	170.0%
Population Size (inhabitants)								
≤5000	3672.8	78.0%	1119.3	332.2%	717.9	106.8%	281.0	186.7%
5001-10000	1982.1	73.4%	1019.6	229.2%	412.8	100.5%	241.0	183.1%
10001-20000	1562.3	70.6%	1025.9	225.7%	333.9	108.2%	235.5	173.8%
20001-50000	1401.9	66.1%	1048.0	200.7%	303.0	99.8%	234.6	182.6%
50001-100000	1345.1	61.3%	1059.3	201.1%	297.5	114.5%	269.4	137.6%
100001-500000	1570.5	64.9%	1097.1	184.9%	353.4	114.8%	283.9	97.0%
>500000	1678.4	58.3%	1034.7	173.3%	387.3	109.1%	363.9	81.0%
Per capita household income								
Quintile 1	1340.9	69.9%	1080.9	217.4%	260.8	80.6%	248.4	196.4%
Quintile 2	1584.3	75.7%	971.6	244.7%	310.8	99.1%	265.8	182.0%
Quintile 3	2390.4	78.6%	1022.4	285.8%	488.3	113.3%	257.9	170.8%
Quintile 4	2542.9	72.6%	1053.9	249.1%	546.1	113.1%	246.5	160.4%
Quintile 5	2593.0	71.4%	1143.2	225.9%	550.4	113.0%	241.9	150.5%

Source: Research results obtained from SIOPS and IBGE data.

Evolution of expenditures according to population size

In terms of population size, the pooled regression showed that, in relation to the reference group (≤5,000 inhabitants), all other groups had a lower annual variation in *per capita* expenditure financed with own resources in the period (p<0.001), that is, the smaller municipalities were the ones that most increased health spending with own resources. Furthermore, the progressive decrease in the coefficients between the quintiles indicates that up to 50,000 inhabitants, the larger the population size, the lower the growth of this expense. After 50,000 inhabitants, the relationship was inverse: the larger the population size, the higher the growth. It is worth noting that the group of more than 500,000 inhabitants had a coefficient similar to the group of 5001 to 10,000 inhabitants (Table 2).

As for health expenditures financed by non -proprietary sources, the reference group had a significantly higher variation than the other groups, except for the municipalities in the group of more than 500,000 inhabitants, which did not obtain a statistically significant association (p=0.217). When the total percentage variation (TPV) was considered, it was noted that in general the expenditure from non-proprietary sources grew more than proprietary expenditure, further indicating a trend that the smaller the population size, the greater the growth of non-proprietary expenditure (Table 1). In fact, the TPV of the evolution of these non-proprietary expenses in municipalities with less than 5,000 inhabitants was 130.5% higher than in municipalities with more than 500,000 inhabitants.

Evolution of expenses according to the average family income

As for the differences in the evolution of *per capita* municipal spending according to the municipality's average household income quintile, the regressions indicate that the reference group's own spending (≤5,000 inhabitants) grew at a lower rate than the others (p<0.001). That is, the progressively higher coefficients show that the higher the household income of the municipalities, the greater the annual increase in proprietary expenses. For non-proprietary expenditures, on the contrary, no statistical relationship was detected between income quintile and the growth of these transfers (Table 3).

Still in relation to income quintiles, between 2004 and 2019, the percentages of absolute own revenue applied in health were different among the groups: the lowest income quintile applied 19.6% of its own revenue in health, while the highest income quintile applied, on average, 21.6%,

Table 2. Pooled regression model for the association between the annual variation in per capita health expenditure from proprietary and non-proprietary resources and the population size of Brazilian municipalities, 2004-2019.

Group	Coefficient	Inferior	Superior	p-value
Proprietary resources				
≤5000* inhabitants	30.02	28.73	31.31	<0.001
5001-10000 inhabitants	16.36	14.52	18.2	<0.001
10001-20000 inhabitants	14.18	12.38	15.98	<0.001
20001-50000 inhabitants	12.33	10.41	14.25	<0.001
50001-100000 inhabitants	12.58	9.75	15.41	<0.001
100001-500000 inhabitants	15.3	12.13	18.48	<0.001
>500000 inhabitants	16.95	9.46	24.44	<0.001
Non-proprietary resources				
≤5000* inhabitants	18.44	16.9	19.97	<0.001
5001-10000 inhabitants	15.02	12.83	17.21	0.002
10001-20000 inhabitants	14.83	12.69	16.97	<0.001
20001-50000 inhabitants	14.86	12.57	17.14	0.002
50001-100000 inhabitants	15.11	11.74	18.47	0.052
100001-500000 inhabitants	12.69	8.92	16.46	0.003
>500000 inhabitants	12.83	3.93	21.74	0.217

*Reference group.

Source: Research results obtained from SIOPS and IBGE data.

Ciência & Saúde Coletiva, 27(6):2459-2469, 2022

without substantial changes in this inequality throughout the period. In addition, 30.5% of health expenditures in the period were financed by transfers in the highest income quintile, while it was 48.8% in the lowest income quintile, suggesting that lower income municipalities are more dependent on transfers for health financing.

Discussion

Revenue evolution

Considering Brazil's tax patterns are concentrated in consumption taxes, the higher the services rendered and the circulation of goods, the higher the tax revenues and more revenue is collected[1,13]. In other words, revenues are especially sensitive to the economic activity prevailing in the period.

In this sense, regarding revenues, the evolution of municipal health financing described in this study can be associated with the following economic contexts: (a) the "Little Economic Miracle" (*Milagrinho Econômico*) conjuncture between 2004 and 2014 allowed the stable growth of total municipal tax revenues observed in the period[13]; (b) the drop in municipalities' own revenues between 2008 and 2009 may be related to the disruption resulting from the international crisis of 2008, which led to the fall of GDP in Brazil, in 2009, with a variation of -0.1%[21]; (c) the economic recession that began in 2014[22] caused the drop in total revenues of all municipalities between 2014-2015; (d) the subsequent economic recovery has allowed total revenue growth to resume between 2016 and 2019.

The higher total variation of non-proprietary revenue in relation to the proprietary revenue in the period from 2004 to 2019 indicates a process of increasing fiscal dependence of the municipalities. This process became more evident after 2016, when the *per capita* non-proprietary revenue started to represent, on average, 40.18% of the total revenue, higher than the historical average between 2004 and 2015 of 29.92%. This panorama of dependence on federal transfers is indicative of the low tax collection capacity of the municipalities, aggravated by the approval of constitutional amendments that limited municipal autonomy in the development of local taxation mechanisms[23]. As Tristão[24] points out, there is a disincentive to municipal fiscal effort when intergovernmental transfers are available without the requirement of counterparts in the effective collection of own taxes. Thus, intergovernmental transfers become the "backbone" of municipal financing.

In this sense, although it is a structural characteristic of the established tax structure, the dependence of municipalities on intergovernmental transfers has increased since 2014, in a context of economic crisis. This situation is especially present in municipalities with smaller populations, which had greater growth in health revenues and expenses from non-proprietary sources, and those with lower average household income, which had greater growth in non-proprietary expenses.

In the pandemic context of COVID-19, it is worth noting that the increase in fiscal dependence persists in 2020, with a 13.5% drop in proprietary revenues and an 18.3% increase in non-proprietary revenues for all municipalities between 2019 and 2020[25].

Evolution of expenditures

The increase in *per capita* health expenditures in the observed period can be attributed to several causes, among them: expansion of infrastructure, investments in improving the quality of services provided, and incorporation of new health

Table 3. Pooled regression model for the association between the annual variation in per capita health expenditure from proprietary and non-proprietary resources with the per capita household income group of Brazilian municipalities, 2004-2019.

Group	Coefficient	Inferior	Superior	p-value
Proprietary resources				
Quintile 1*	8.7	7.32	10.09	<0.001
Quintile 2	11.87	9.91	13.83	0.002
Quintile 3	21.12	19.17	23.08	<0.001
Quintile 4	23.99	22.03	25.95	<0.001
Quintil 5	24,02	22,06	25,98	<0,001
Non-proprietary resources				
Quintile 1*	16.24	14.6	17.89	<0.001
Quintile 2	16.68	14.35	19.01	0.713
Quintile 3	15.69	13.37	18.02	0.646
Quintile 4	14.98	12.65	17.31	0.290
Quintile 5	14.45	12.12	16.79	0.133

*Reference group.

Source: Research results obtained from SIOPS and IBGE data.

technologies, especially those of high cost[26,27]. The fall in expenditures from 2014 onward may be associated with the deterioration of revenues as a result of the economic crisis.

The increase in the participation of transfers for the payment of expenses, associated with the proportional reduction in the municipalities' own tax collection, corroborates the hypothesis that there was an increase in the fiscal dependence of the municipalities, in this case, directly affecting the costing of health. Moreover, the reduction of the Union's participation in these transfers, intensified from 2015 when the economic crisis worsened and the New Fiscal Regime (NFR - EC No. 95/2016) was imposed, brings consequently a greater financial responsibility of states and municipalities for health care costs.

In this context, the balance of state finances becomes a great challenge as the "fiscal war" and indebtedness intensify amid a process of recentralization and reduction of federal transfers, concomitant to the increase of political pressure for transfers to municipalities in a situation of scarce resources[9].

Regarding the relationship between the different spheres of government in the context of crisis, Padilha *et al.*[23] also indicates that there was a strong reduction in federal transfers to regional care networks from 2015 on, thus affecting subnational governance. They also note the occurrence of disputes between the legislative, judicial, and executive branches of the federal government over the allocation of resources, evidenced by the increase in federal spending on health-related parliamentary amendments and the large number of lawsuits (judicialization of health), phenomena that favor the fragmentation of spending to the detriment of investments in universal care networks and programs[23].

With regard to the Union's participation, the reduction in transfers limits the possibility of fighting regional inequalities in access to services, since scarce resources are applied primarily in the maintenance of already existing services and, consequently, locations with less developed health infrastructure are left with a difficult horizon for expanding the offer of services[28].

With respect to the spending cap determined by EC No. 29/2000, it is clear that in the first two years covered by this study, a substantial number of municipalities were still adapting to the norm. Once this stage has been overcome, the findings reinforce the understanding that the institution of EC No. 29/2000 expanded the allocation of resources in the SUS by increasing the budgetary commitment of the municipalities and states with health[29].

Characteristics by population size

Smaller municipalities can benefit from the criteria established for the transfer of federal resources via the Municipal Participation Fund (MPF) and, probably because of this, they have been increasing their spending on health mainly with non-proprietary resources[2]. As observed in these smaller municipalities, a greater increase in non-proprietary revenues can mean, as a consequence, a greater increase in health expenditures from these non-proprietary sources. This indicates that an important part of the transfers is being destined to the health area. Therefore, the process of increasing overall fiscal dependence, besides being more intense in the smaller municipalities, also affects health financing in these locations.

Likewise, the growth of proprietary expenses is associated with the growth of its proprietary revenues. In addition, this situation can be better understood considering the requirement, by EC No. 29/2000, that the municipalities apply in health services and actions a minimum amount of their own revenues. In this sense, the smaller municipalities, compared to the larger ones, had a more significant increase in the application of own resources to finance health services and actions because the growth of these revenues was also higher in these municipalities.

Although both proprietary source and non-proprietary source funded expenditures grew, the increase in the latter was greater (170% vs. 101.2%), thus corroborating the greater intensification of dependence for health care funding.

Characteristics by income

It was expected that the higher *per capita* spending on health services and actions incurred by the richest municipalities would be associated with the greater availability of own resources, collected locally, given the greater economic activity of these municipalities. Is there, however, something else that explains the greater percentage allocation of their own resources in the health area?

Some hypotheses can be considered to explain this panorama: municipalities with higher average household income may have a higher demand for specialized, high-tech, high-cost health services, or the administration of health services in these municipalities may have a higher cost. As

Ciência & Saúde Coletiva, 27(6):2459-2469, 2022

discussed by Musgrove *et al.*[30], after finding a directly proportional relationship between *per capita* income and health expenditure in 191 countries, both explanations are plausible and may be complementary, since health inputs (e.g., labor) have been associated with higher cost according to income, although it is recognized that as for the first hypothesis, establishing and investigating the optimal level of demand for health expenditure and services is a particularly complex task as it depends on several characteristics of the population under analysis[30].

It is also possible that the demand for other public services not directly related to health in lower income municipalities imposes, more importantly than in richer municipalities, a limit on spending on health services, so that in municipalities with higher household income there is a greater margin for allocation to health.

The higher growth of proprietary source funded expenditures in higher-income municipalities suggests a widening of economic inequalities between groups of municipalities: while richer municipalities maintain and expand financial self-sufficiency, poorer municipalities reduce it. Although the regression did not consider the different annual variation between the groups, the total percentage variation indicated that, in proportional values, the expenditures financed with non-proprietary resources in health had progressively higher growth in the group of municipalities with lower income compared to the groups with higher income (Table 1). Therefore, if in all the municipalities there has been an increase in fiscal dependence, in the lower income municipalities this increase has been more important for health costs. Thus, not only has the share of transfers that finances health expenditures always been greater in the groups of poorer municipalities, but it was also in these groups that it expanded the most. It should be added that the increase in expenditures paid with own resources was not as great in the lower income municipalities as in the higher income ones.

Limitations

To properly interpret the data produced, one should consider that only the data provided by the municipalities was computed. Therefore, the analysis of the evolution of state or national resources that were transferred and their implications had to be done indirectly, based on what was reported by the municipal health secretariats through SIOPS. Furthermore, it is necessary to draw attention to the impossibility of drawing specific conclusions about the municipalities in isolation, since the indicators were calculated as an average, homogenizing a very heterogeneous set of 5,560 municipalities.

Conclusion

The results presented reflect the permanence of old problems: since the creation of the SUS in a period significantly prior to this study, there has persisted a lack of constitutional or legal provisions to ensure its financial sustainability and equitable distribution of resources. What we have seen, over more than 30 years, is the adoption of provisions consistent with macroeconomic policy options in search of fiscal surpluses, putting obstacles in the way of financing the SUS in ways adequate to meet the health needs of the entire population.

The fiscal federalism in force is characterized by decentralization only in what concerns expenditures, not in what concerns tax collection, evidencing a situation of fiscal dependence. In this study, it was evidenced that the dependency grew in the analyzed period, especially after the 2015 crisis, given the increase in the share of non-proprietary revenues in the budgets.

If the underfunding of the SUS has not been overcome, there was, however, a real growth in health spending by the municipal sphere from 2004 to 2014 of around 156.3%, supported by the increase in revenues over the same period.

In addition to the chronic problems that were aggravated by the recession, new challenges have arisen, since the responses given to the crisis that began in 2014 – such as the adoption of the spending cap – possibly caused the effect detected in this study: the decrease in the Union's participation in health transfers to the municipalities, causing greater pressure on the budget of the states associated with the acceleration of the increase in the dependence of municipalities on other spheres of government due to a drop in their own collection.

This is a challenging situation for states and municipalities, since they are already in a situation of insufficient resources to cover the expenses, they have undertaken, including indebtedness, also historical, with the Union[9]. It should be emphasized that this situation is especially threatening for health financing in lower income municipalities, which are more dependent on transfers.

The understanding that austerity is the only solution to balance the economy and resume growth is not a consensus among economists and political leaders. In fact, while some insist on its adoption, others have argued that it is a flawed strategy, incapable of generating surpluses or sustainable economic growth. As the results of this study suggest, fiscal austerity measures – the main example being EC No. 95/2016 – are deleterious especially for municipalities with lower household income and smaller population size, given the greater fiscal dependence in health financing in these groups. As these municipalities were already and became more dependent over the course of the period, they were also more susceptible to the negative impacts of budget restrictions that affected resource transfers.

As for the categorization by population size, it is worth noting the fundamental role that EC No. 29/2000 has played for smaller municipalities in stabilizing municipal health spending, even with its operational limits. However, the increase in the proportion of non-proprietary revenues in financing health services and actions warns of the intensification of the fiscal dependence of the municipalities in relation to the two other spheres of government, with their own spending protected by the amendment that establishes a budgetary cap for health spending.

Finally, this study, by analyzing temporal trends over a 16-year period, shows a continuous process of increasing fiscal dependence of municipalities, intensified after the 2015 crisis.

Collaborations

WGN Cruz worked on the conception, data collection and analysis, discussion of results, and drafting of the manuscript. RD Barros worked on the conception, definition of methodological strategies, data analysis, discussion of results and critical review of the manuscript. LEPF Souza worked on the conception, definition of methodological strategies, discussion of results and critical review of the manuscript.

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