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The Degree of Dependence on the Municipal Participation Fund and the Socioeconomic Characteristics of Municipalities in the State of Minas Gerais, 2013 to 2022

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ABSTRACT

This study measures the degree of dependence of municipalities in Minas Gerais on the Municipal Participation Fund (FPM) and examines its relationship with socioeconomic characteristics and fiscal sustainability. The central hypothesis is that municipalities with high FPM dependence tend to display financial fragility. Secondary data from FINBRA, SIDRA, and IPEADATA covering the period from 2013 to 2022 were used, complemented by the Firjan Fiscal Management Index (IFGF). The findings indicate an average FPM dependence of 40.7%, concentrated among smaller municipalities. The results confirm the hypothesis by revealing an inverse relationship between FPM dependence and fiscal performance. The IFGF Autonomy indicator showed the largest discrepancy between high- and low-dependence municipalities, suggesting reduced own-revenue effort. The findings support the fiscal laziness argument and provide evidence to guide public policies aimed at reducing reliance on intergovernmental transfers and strengthening municipal fiscal autonomy and financial sustainability.

Keywords: Municipal Participation Fund, Financial Sustainability, Fiscal Laziness.

JEL Classification: H71, H77, H72

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1. INTRODUCTION

Brazilian fiscal federalism is a model that seeks a balance between autonomy and cooperation among the federative entities, which are: the Union, the States, the Federal District, and the Municipalities (Gadelha, 2018). In this sense, it ensures that each level of government has its own resources for its functions, but also imposes limits through the Fiscal Responsibility Law; that is, it establishes rules so that they can manage these resources responsibly, ensuring transparency in public spending, without excessive debt, and with resources used in a sustainable manner. Furthermore, a rigid fiscal federalism is evident, which promotes administrative and financial decentralization, with clear rules for the collection and use of resources, as well as mandatory financial transfers and challenges arising from the unequal distribution of revenues.

The decentralization process established by the 1988 Federal Constitution granted financial autonomy to Brazilian municipalities (BRAZIL, 1988). Given this, even if these municipalities have their own sources of revenue or resources, they are often insufficient, making it impossible to fulfill all their obligations. This situation is evidenced by the IFGF—the Firjan Fiscal Management Index, a social oversight tool that can improve cities’ financial management; In an analysis by Sousa *et al.* (2013), it is shown that most municipalities facing financial challenges are located in the North and Northeast regions of the country, where dependence on government transfers is greater and local revenue tends to be more limited.

In this context, it is important to highlight the role of intergovernmental transfers, which act as a means to reduce the disparities that arise in the context of fiscal federalism (Oliveira; Oliveira, 2023). In Brazil, the main mechanism for intergovernmental resource transfers is the Municipal Participation Fund (FPM), which is a valuable source of revenue for Brazilian municipalities, especially smaller ones, and ensures the continuity of most emancipated municipalities (Tomio, 2002).

Consequently, for most municipalities in Brazil, the primary source of revenue is funds from the Municipal Participation Fund (Giroldo and Kempeer, 2012), which may lead to a dependency on this resource, a potential reduction in fiscal efforts toward own-source revenue and an increase in public spending (Filho *et al.*, 2023).

Although this is a topic of great importance, no study in the literature was found that investigated the relationship between dependence on intergovernmental transfers and the financial sustainability of municipalities. Studies such as those by Massardi and Abrantes (2015) and Oliveira and Oliveira (2024) address these aspects in isolation, but do not examine the intersec-

tion between dependence and sustainability in an integrated manner.

In this context, this study seeks to understand whether municipalities in Minas Gerais that are highly dependent on the Municipal Participation Fund (FPM) exhibit characteristics that render them financially unsustainable, analyzing whether high dependence hinders the financial equilibrium of these cities.

The overall objective of this research is to measure the degree of municipalities' dependence on the FPM and compare it with their socioeconomic characteristics. To this end, secondary data from FINBRA, SIDRA, IBGE, and the Firjan Fiscal Management Index (IFGF) were used, covering the period from 2013 to 2022.

The analysis was conducted using descriptive and comparative statistics, which allowed us to classify municipalities according to their degree of dependence on the FPM and examine the relationship between this dependence and indicators of financial sustainability. The central hypothesis guiding the study is that municipalities with greater dependence on the FPM tend to exhibit lower fiscal autonomy and weaker financial performance.

This research is of great significance, as it has the potential to contribute to better public policies that can reduce municipalities' dependence on external transfers, thereby promoting more effective and independent financial management. Furthermore, it can also provide methods for distributing resources that are more oriented toward fiscal sustainability, with the aim of improving the financial conditions of municipalities.

In light of the above, the study is organized into four sections. The second chapter presents the theoretical framework underpinning the study, which addresses the concepts of fiscal federalism and decentralization, the context of intergovernmental transfers, financial dependence, and municipal sustainability; as well as relevant characteristics of the FPM, within the scope of its implications, new rules, and challenges and alternatives to its reliance on a review of the relevant literature. The third chapter describes the methodology used, detailing the analytical model and the databases. The fourth chapter presents the results obtained and their analysis based on the relationships identified in the theoretical framework. Finally, the fourth chapter addresses the final considerations, summarizing the main conclusions and stating whether the overall objective was achieved.

2. THEORETICAL FOUNDATION

Federalism represents a structure of state policy that facilitates the governance of power ₅

to meet the diverse needs of regions with distinct characteristics, particularly in countries with a large territorial extent. This is achieved by dividing the government into entities such as municipalities and states, all operating under a central authority; within this structure, the federal government collaborates with the independent member states, requiring discussions on the distribution of responsibilities and allocation of resources, while preserving the autonomy of each entity.

In this context, according to Oates (1999), the concept of fiscal federalism proposes a model aimed at dividing responsibilities and revenue sources among the various levels of government, to increase the effectiveness of public administration. By granting local governments greater freedom to decide on and manage resources, it enables decisions to be made closer to the communities, facilitating the adaptation of public services and the proper execution of governmental functions to more accurately meet the needs of the population.

However, the author emphasizes that the use of the term “federalism” in an economic context differs from its classical political definition, which refers to the shared autonomy between the central government and decentralized levels of government. From an economist’s perspective, most public sectors can be considered somewhat federal, insofar as there are different levels of government involved in the provision of public services, even beyond what the constitution suggests. Consequently, in this context, it is argued that the term may be imprecise, as it implies a limited focus on budgetary issues, whereas, in fact, it encompasses a broader set of issues regarding the structure of the public sector.

Furthermore, Oates (1999) argues that the implementation of this model requires balanced decentralization, since municipalities need autonomy to plan and act, while at the same time requiring support to prevent regional inequalities. Thus, these decentralized levels of government are important in providing goods and services according to local needs, thereby increasing economic well-being; since the optimal level of public services may vary across different jurisdictions due to differences in preferences and costs, it is essential that local offerings be tailored to maximize social well-being. Furthermore, the “principle of subsidiarity” is frequently cited in Europe by supporters of fiscal decentralization, which establishes that government decisions and actions should be carried out by the level closest to the population and be capable of meeting established goals.

According to the 1988 Federal Constitution of Brazil, the decentralization process ensured that Brazilian municipalities were guaranteed autonomy, as stated in the following article: “Art. 18. The political and administrative organization of the Federative Republic of Brazil

comprises the Union, the States, the Federal District, and the Municipalities, all of which are autonomous under the terms of this Constitution.” Thus, the article establishes the right to administrative, political, and financial autonomy, recognizing municipalities as federative entities with the right to generate their own revenue and organize themselves.

Initially, the granting of autonomy to municipalities stemmed from the fact that, previously, these entities had limited powers and relied heavily on the state and federal levels for the implementation of public policies. With the new constitutional arrangement, municipalities gained greater capacity to directly serve their populations, taking local particularities into account and adopting decisions more aligned with the needs of their citizens.

Given this, although municipalities have their own sources of revenue, such as local taxes, in many cases these resources prove insufficient to fully fulfill their constitutional duties. On the other hand, according to Ribeiro and Júnior (2004), in some cases, municipalities that collect taxes from non-residents can increase their own revenue (fiscal effort) without facing local political pressure, due, for example, to having intense tourism activity, with visitors who are not local voters and therefore do not hold elected officials accountable.

Consequently, according to Oliveira and Oliveira (2023), intergovernmental transfers serve as a means to reduce the divergences that arise in the context of fiscal federalism; thus, municipalities manage their own revenue sources and receive these additional revenues, in addition to being able to enact exclusive organic laws. Furthermore, one of these revenue redistribution mechanisms is the Municipal Participation Fund (FPM).

The Municipal Participation Fund (FPM) is viewed as one of the most significant transfers from the federal government (Esteves *et al.* 2023). In this regard, it was created through Constitutional Amendment No. 18 in 1965, as a result of the tax reform of that time; the legislative proposal stipulated that 10% of the revenue obtained from federal taxes on income and industrialized products be allocated to municipalities, taking into account the participation coefficients based on the population of each locality. Thus, greater financial decentralization brought about by the 1988 Constitution resulted in an increase in municipal revenues; and in this context, the FPM, whose percentage has increased over the years, currently stands at 24.5%, with the coefficients calculated based on data from the IBGE; and derived from sources of the Income Tax (IR) and the Tax on Industrialized Products (IPI).

According to Paula and Pinho (2023), municipal taxes—particularly those of a progressive nature—hinder income redistribution, as they do not align adequately with locally generated revenue; moreover, the tax base for property taxes is fixed, allowing rates to be increased wi-

thout a significant loss in revenue; and this complexity of the redistribution system is exacerbated by regional disparities in Brazil. Given this, the FPM represents one of the main methods of tax revenue redistribution in Brazil.

Regarding this revenue, according to Tomio (2002), the FPM is a valuable source of revenue for Brazilian municipalities, especially smaller ones, and ensures the survival of most emancipated municipalities. The economy in these localities is underdeveloped and requires sources that generate tax revenue, which leads to minimal contributions to state and federal tax collection, and their functionality depends directly on federal transfers.

Intergovernmental transfers can be divided into conditional and unconditional transfers. In this regard, according to Pacheco *et al.* (2019), it is noted that unconditional transfers, such as the share of the Municipal Participation Fund (FPM) and the Tax on the Circulation of Goods and Services (ICMS), can be used freely by municipalities without the need for a specific allocation. According to Mendes *et al.* (2008), these transfers serve to reduce the so-called “fiscal gap,” which is the difference between what a municipality can collect and what it needs to spend to serve its population. This gap is influenced by both revenue-raising capacity and spending needs; municipalities with low revenue and high demand tend to have a large fiscal gap. Conditional transfers, on the other hand, such as those from the Unified Health System (SUS) and the Fund for the Maintenance and Development of Basic Education and the Valorization of Basic Education Professionals (FUNDEB), must be used in specific areas, such as health and education.

In this context, Mendes *et al.* (2008) highlight some of the impacts that intergovernmental transfers can have on tax revenue and the fiscal effort of Brazilian municipalities. Unconditional transfers, such FPM, tend to reduce the effort to collect taxes, as they diminish the need for municipalities to generate their own revenue; whereas conditional transfers encourage greater fiscal efficiency, as municipalities need to supplement funds for areas not covered by these transfers. In this regard, the “*flypaper effect*” is cited, whereby unconditional transfers cause an increase in spending relative to total municipal expenditures that is greater than the corresponding increase in revenue.

Studies such as that by Massardi and Abrantes (2015), titled “Dependence of Municipalities in Minas Gerais on the FPM,” show that many Brazilian municipalities, especially small ones, are highly dependent on the FPM. In this scenario highlighted by the authors, there is an analysis, covering the period from 2004 to 2009, of the dependence of municipalities in Minas Gerais on the FPM, and the study concludes that the vast majority of municipalities have a de-

pendency level exceeding 50%, with municipalities having fewer than 20,000 inhabitants being the most dependent. Thus, it is analyzed that these municipalities exhibit a certain degree of complacency due to receiving larger transfers, which undermines their efforts to generate their own revenue.

Following this line of reasoning, according to Araújo *et al.* (2020), heavy reliance on these transfers can reduce municipalities' revenue-raising efforts and increase their financial vulnerability, highlighting that the absence of rules governing this reliance ultimately creates opportunities for administrators to disregard fiscal rules, which compromises the financial health of local governments. Thus, it is suggested to establish connections to access resources from other levels of government, which can be advantageous for municipal financial management, as it can help balance revenues and expenditures, allowing for better allocation of public resources, in addition to encouraging administrators to seek greater amounts of resources, both their own and from other federal entities.

According to Louzano *et al.* (2020), based on the increase in intergovernmental transfers, there is consequently a reduction in the revenue-raising efforts of local governments that receive the transfers; this phenomenon is called the "Oates' Veil Hypothesis."

Thus, given the level of dependence on tax revenue, the fungibility of funds means that transfers negatively impact local tax collection; when a local government receives funds, regardless of their source, they are treated simply as part of the general budget. Since they receive many transfers, they become less dependent on the taxes they could collect locally, which may lead to a more lenient approach to tax enforcement and collection, as they feel less need to ensure that everyone pays their taxes correctly. Thus, states may end up benefiting, as municipalities fail to collect taxes that, in another scenario, could be collected and shared with other levels of government. Furthermore, when local governments receive large transfers from the federal government, this can lead to a less efficient use of these resources. In this sense, instead of being strategically applied to improve public services, such as health and education, these transfers may end up being managed in a way that fails to achieve the actual goals for the population.

According to Oliveira and Oliveira (2023), there are some tax reforms that could affect the financial sustainability of small municipalities, such as PEC 188/2019, also known as the Federal Pact Amendment. This proposal suggests the merging of municipalities considered unsustainable into the group of sustainable ones, assessing the financial viability primarily of small towns, which is determined by the ratio of own-source revenue to total revenue.

Thus, as presented by Oliveira and Oliveira (2023), this proposal raises debates about the

capacity of these municipalities to generate their own revenue; since the elimination of small municipalities could lead to the population becoming disengaged from participation in local politics, compromising the democratic principle. Although constitutional transfers are collected by the federal government and the states, in accordance with the 1988 Federal Constitution, they belong to the citizens and municipal administrations. Thus, the Municipal Participation Fund (FPM) is therefore essential for the reallocation of resources and for minimizing disparities.

In this context, with the 2022 Demographic Census, there were significant changes in the distribution of the FPM, directly impacting financial transfers to various Brazilian cities, as presented by the CNM Study (2023). Consequently, since the calculation of this fund takes into account the population of each municipality, any variation in the number of inhabitants can result in an increase or decrease in the amounts received.

Thus, it is emphasized that the update of demographic data indicates that 249 municipalities saw an increase in their coefficients, ensuring a larger FPM transfer, while 770 cities experienced a reduction, which means less money in the budget. In this regard, based on the CNM study, the city of Extremoz, in Rio Grande do Norte, stands out, having gone from a coefficient of 1.4 to 2.4, guaranteeing five additional FPM quotas. It is also worth noting that, for this analysis, municipalities were grouped according to the change in the number of quotas to be received from the FPM, with one quota from the Fund equaling a coefficient of 0.2; for example, if a city has a coefficient of 1.0 in the FPM, it has five quotas.

The study by Granai *et al.* (2023) analyzes the impacts of intergovernmental transfers—particularly the Municipal Participation Fund (FPM)—on social and economic indicators, such as health and education. In addition, it examines some of the effects during times of crisis, such as during the period of public calamity in Brazil caused by the COVID-19 pandemic.

In terms of education, with these transfers, municipalities can invest more effectively, thereby having the potential to raise educational standards, reduce poverty, and thus combat illiteracy through investments in incentives to keep students in school, as presented by Avezani (2015).

Regarding the health sector, in the context of the pandemic, there was consequently an increase in health-related expenditures; it can be observed that municipalities that received extra transfers from the FPM faced the crisis more effectively; in contrast, those that did not receive them faced a high number of deaths and hospitalizations (Granai *et al.*, 2023). Thus, this additional transfer played a fundamental role in the municipalities' response to the pandemic, a time when there was a great need to acquire medical equipment, expand hospital infrastructure, hire

healthcare professionals, and ensure the supply of medications and vaccines.

The term “fiscal illusion,” as Araújo and Siqueira (2016) note, has often been used to explain the rise in public spending and occurs when the structure of transfer payments leads citizens to underestimate the costs of public services and, consequently, demand higher levels of public spending. In other words, it occurs when the government manages to collect more revenue without the population clearly perceiving the impact of this, which allows for sustained high spending. In this way, the government caters to different groups in society that wield political influence and lobby for more investments in their areas of interest.

This phenomenon can occur primarily when transfers of funds from the federal and state governments to municipalities are mandatory (Araújo *et al.* 2020). This happens because municipal managers come to rely on these guaranteed funds and, often, do not worry as much about balancing revenue and expenditure or seeking new sources of revenue, spending them without much planning, which can lead to irresponsible financial management.

According to Esteves *et al.* (2023), excessive dependence on the FPM can limit municipalities’ ability to boost own-source revenue, creating a cycle of dependency that undermines their financial sustainability. The study indicates that approximately one-third of the budget revenue of the municipalities analyzed in a particular state consisted of the FPM, while their own tax revenue accounted for less than 6% of total budget revenue.

To improve the financial sustainability of municipalities, it is necessary to develop solutions; some municipalities are already implementing key measures, such as educational activities involving the distribution of pamphlets to raise citizens’ tax awareness (Esteves *et al.*, 2023). In addition to creating incentives, another solution would be to promote efficiency in the management of public resources, thereby reducing unnecessary spending, reviewing contracts, reducing appointed positions, and implementing cost-containment measures, which can enhance the effectiveness of the administration of available resources.

In this context, according to Paes and Siqueira (2008), there are certain regional inequalities regarding the distribution of tax revenues, such that the most disadvantaged tend to become even poorer, while the most advantaged accumulate even more wealth. In this sense, a strategy aimed at reducing these disparities is essential, focusing on the transfer of resources to the neediest areas, with the primary goal of boosting their development. Extensive imbalances between regions adversely affect a nation’s progress and the well-being of its citizens, which can result in the disintegration of the federal agreement.

In light of this, the FPM emerges in this situation as a highly relevant tool, playing a

significant role in correcting these disparities through the reallocation of resources (Oliveira; Oliveira, 2023). In this scenario, better opportunities are offered to smaller cities, enabling them to provide public goods and services to the local community.

Oliveira and Oliveira (2023) propose several alternatives related to small municipalities to ensure a fairer assessment, including treating intergovernmental transfers as the municipality's own revenue, similar to the revenues obtained by other levels of government. In addition, restructuring local administrations to implement policies that encourage the merger of cities, in order to improve the effectiveness of local management and create economies of scale, would be another option.

3. METHODOLOGICAL PROCEDURES

In terms of its purpose, this study is considered descriptive. According to Gil (2008), descriptive research is a type of investigation that aims to describe the characteristics of a given population or group, as well as to identify and analyze relationships between variables; it also involves data collection, organization, classification, and interpretation of this information to better understand the reality under study. In this study, descriptive research is justified because it describes characteristics of municipalities in order to establish relationships between the FPM and the fiscal sustainability of municipalities.

With regard to the methods, this is a documentary study. According to Gil (2008), documentary research is that which utilizes materials that have not yet been fully analyzed by other researchers, such as reports, financial statements, data from official agencies, or institutional archives, which can be interpreted and used in a new way, in accordance with the study's objectives. In this case, the choice of this methodology is based on the use of official documents and public data, such as those from the National Treasury Secretariat (STN), and other institutional records. These materials provide concrete and reliable information, which enables the identification of patterns, relationships, and trends related to financial sustainability and the degree of dependence on the FPM, thereby helping to validate or refute the study's central hypothesis.

This study is considered longitudinal (temporal); according to Augusto *et al.* (2013), in this type of study, the same sample or groups are followed over time—that is, data are not collected at a single point in time, but rather at various different intervals, such as year by year or semester by semester, among others; to be observed at all stages of the research, allowing changes over time to be identified. In the present study, this approach is relevant due to the use

of the panel data regression model, which analyzes data over a period of time, such that a municipality's financial sustainability cannot be assessed based on data from a single point in time.

3.1 Database

The research will use secondary data. According to Prodanov and Freitas (2013), this data consists of existing information accessible through bibliographic or documentary research, meaning it was previously collected for other purposes, not specifically for the current study; and can be found, for example, in statistical records, journals, and books. In the context of this study, the use of secondary data is justified by the use of existing data, extracted from public databases, which provide up-to-date and reliable information; sourced from FINBRA (2025), SIDRA (2025), and IPEADATA (2025); covering the period from 2013 to 2022.

Thus, for accounting and tax data from Brazilian municipalities, Finbra (Finanças do Brasil) was consulted. This database is maintained through data submissions by the National Treasury Secretariat (STN) via two main systems: Siconfi (Brazilian Public Sector Accounting and Tax Information System) and the Accounting Data Collection System (SISTN); the latter being a section within SICONFI, containing information starting from the 2013 fiscal year (FINBRA, 2025).

Thus, the collection of this data must comply with the Fiscal Responsibility Law, with municipalities submitting their accounts by April 30 of each year. On this basis, it is possible to assess how much each municipality collected, spent, and how it used public funds, in order to analyze the financial situation of local governments and monitor how public money is being managed.

In addition, data from the SIDRA database (IBGE Automatic Retrieval System) was used, a tool created by the IBGE (Brazilian Institute of Geography and Statistics) to facilitate access to information contained in the Statistical Tables Database from surveys conducted by the institute. In this context, this database consists of aggregated survey data; that is, the results are organized in a general manner, without identifying individual respondents, making it useful for understanding the economic, social, or agricultural reality of a region. In addition, the data is categorized by year, location, and often by other characteristics, such as product type and production volume; it also allows users to select different geographic levels (Brazil, major regions, states, municipalities) (SIDRA, 2025).

To better understand key information about the economy of each municipality in Brazil, ¹³

we used municipal GDP data provided by the IBGE in collaboration with state partners. This data shows how much each municipality produced in goods and services during the year in the agriculture, industry, and services sectors, with figures that align with national and regional data. The report also presents tax revenue figures, the city's total GDP, and GDP per capita, highlighting the public sector—such as health and education—since, in many cities, this sector represents a significant portion of the local economy (IBGE, 2025).

In addition, IPEADATA was utilized, a free, public-use database created by the Institute of Applied Economic Research (IPEA), which compiles a vast amount of information about Brazil. The available data is classified into macroeconomic, regional, and social categories; these show, respectively, the country's economic situation over different periods with information such as inflation, interest rates, exchange rates, and other variables; the economic, demographic, and geographic situation of Brazil's states and municipalities; and information on topics such as income, poverty, education, health, and social assistance (IPEADATA, 2025).

To obtain information on formal employability in the labor market, data from RAIS (Annual Social Information Report) were used. RAIS is a system maintained by the Ministry of Labor and Employment that compiles comprehensive data on workers and formal employment relationships across the country, enabling analysis of the number of available jobs, as well as the hires and layoffs that occur during the year, as well as worker characteristics such as age, gender, education level, length of service, and compensation (RAIS, 2025).

In addition, the analysis of municipalities' financial sustainability was supplemented by the Firjan Fiscal Management Index (IFGF), a tool for social oversight and managerial support that assesses the efficiency of municipal public resource management and, consequently, the fragility or sustainability of municipal finances. The IFGF presents data from official sources, updated annually and covering the entire country; it consists of key indicators such as Autonomy, Personnel Expenditures, Liquidity, and Investments; and its scores range from zero to one, such that values closer to 1 indicate better fiscal management (IFGF, 2025). In this sense, the use of this database is fundamental to research, as it aids in assessing financial sustainability and testing the central hypothesis that high dependence on the Municipal Participation Fund (FPM) leads to financial unsustainability.

3.2 Descriptive Statistics

According to Creswell (2010), research can be qualitative or quantitative, with quanti-
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tative research being an approach that seeks to understand reality through numerical data in order to test theories and analyze whether variables are interrelated; to this end, the researcher uses tools such as official databases, which will be analyzed with the aid of statistical methods. Thus, the data analysis method in this study is quantitative research, which seeks to understand the relationship between concrete and measurable variables, such as, for example, the financial dependence of municipalities and their level of fiscal sustainability. This requires the use of numerical data, often already available in official databases, such as those of the IBGE, and the application of statistical techniques to test hypotheses and identify patterns or correlations.

In this sense, statistical analysis is employed; according to Guedes *et al.* (2005), it employs specific methods for the collection, organization, and proper interpretation of different datasets, such that its primary purpose is to transform this data into clear and easily understandable information, organizing and describing the data through tables and graphs, for example.

According to Fávero (2017), descriptive statistics aim to explain in detail the main aspects to be observed in a given dataset, thereby enabling the researcher to gain a deeper understanding of the data's characteristics. In addition to tools such as graphs and tables, the description and synthesis of data characteristics are also performed using summary statistics, which are numerical measures appropriate for summarizing information from a dataset.

Thus, it is important to emphasize that descriptive statistical analysis is based on the research sample and should be conducted without drawing any inferences about the population. The descriptive statistical approach can be applied to study: one variable (univariate); two variables (bivariate); or more than two variables (multivariate) (Fávero, 2017).

Thus, the application of this analysis is justified, as it serves as the fundamental methodological basis for achieving the research objectives, such as classifying municipalities according to their degree of dependence on the FPM, using ratios, averages, and percentages (summary measures) to describe the weight of transfers relative to total revenue; and in the assessment of financial sustainability based on indicators such as the percentage of own-source revenue relative to total revenue, applying numerical metrics and regression techniques.

In addition, descriptive statistical analysis allows for a better understanding of the behavior of the data and the variables under study, such as "FPM Dependency," for which measures such as Minimum, Maximum, Mean, Standard Deviation, Skewness, and Kurtosis were calculated.

3.3 Variables Used

To calculate the degree of dependence on the Municipal Participation Fund (FPM), the methodology proposed by Massardi and Abrantes (2015) was adopted. This measure is obtained by the ratio between the total amount of funds from the FPM received by the municipality and its current revenue in the same fiscal year, resulting in a percentage indicator that expresses the FPM's share of municipal revenue.

The variable P8020 represents the 80th percentile of income from formal employment earned by residents of a municipality, divided by the 20th percentile of the same distribution (in dollars per year). This indicator expresses the ratio between the highest and lowest incomes from formal employment, serving as a measure of intramunicipal wage inequality.

Socioeconomic indicators for the municipalities were used, with the variables for average monthly wage and workers with no formal education drawn from the RAIS (Annual Report on Social Information), enabling a better understanding of formal employability in the labor market. The average monthly wage is the average of what a formal worker earns per month, where a high average wage reflects the quality of jobs and the level of productivity in the local economy; meanwhile, the variable “employees without schooling” indicates the proportion of employed individuals with little or no formal education, thereby analyzing the impact of education on the labor market and the local productive structure; this serves as an indicator of economies with low value added and high social vulnerability.

Furthermore, per capita operating expenditure refers to the total public expenditure of a given locality, where the total amount is divided by its population, resulting in an average expenditure per inhabitant. GDP per capita is an indicator that measures the average wealth of a country or region, resulting from dividing the total value of final goods and services produced (GDP) by the number of inhabitants (IBGE, 2025). The population variable was also used, which includes information on the total number of inhabitants in a given area (municipality, state, country), using data from the IBGE demographic census.

The IFGF autonomy indicator assesses whether the revenue a city generates on its own—such as local taxes—is sufficient to cover the minimum and essential expenses of its own operations, such as the mayor's and council members' salaries; 1,282 cities are unable to sustain themselves (IFGF, 2025). Thus, this indicator reveals the consequences of municipalities' dependence on government resources, leading to their vulnerability and stagnation, as there is no incentive for the city to develop and generate more local wealth.

The IFGF personnel expenditure indicator measures how much of a municipality's total

revenue is allocated to paying salaries and benefits for public servants; 540 cities spend more than half (54%) of their entire budget on payroll (IFGF, 2025). Consequently, when personnel expenses are very high, the budget loses flexibility, leaving little to invest in health, education, and other areas of improvement for the population.

As for the IFGF liquidity index, it highlights a relationship between the city's outstanding debt—specifically, unpaid obligations from the current year—and the cash on hand available to settle them in the following year; data shows that 413 municipalities deferred payments to the next year without having the necessary funds set aside in their coffers (IFGF, 2025). Thus, it is possible to conclude that accumulated debts can compromise services and the capacity to make new investments in the coming year.

The IFGF investment indicator measures the percentage of a municipality's total revenue allocated to investments—or long-term improvements, such as building schools and health clinics—with 938 municipalities showing a critical level, allocating an average of only 3.2% of their revenue to this purpose (IFGF, 2025). Given this, there is concern that if most of the money is allocated to personnel expenses, little remains to invest in and improve the municipality's development and growth.

As previously mentioned, IFGF indicator scores range from zero to one, with values closer to 1 indicating better fiscal management; and to facilitate their analysis, four categories are established based on different score ranges: Excellent Management—above 0.8; Good Management—between 0.6 and 0.8; Management in Difficulty—between 0.4 and 0.6; Critical Management—below 0.4. (IFGF, 2025).

The analysis of municipal financial sustainability will initially be based on the model proposed by Oliveira and Oliveira (2023), which uses the percentage of own-source revenue relative to total revenue as a central metric. In this approach, own-source revenue equal to or greater than 10% of total revenue is considered sufficient and fair to characterize the sustainability of a local government. However, instead of adopting this fixed cutoff point, the present study opts to use own-source revenue as a proportion of total revenue as a continuous variable, allowing for greater sensitivity in identifying variations in fiscal autonomy among municipalities.

The ratio of own-source revenue to total revenue is an important indicator of municipal fiscal autonomy, reflecting the extent to which local governments rely on their own revenue sources rather than on intergovernmental transfers. Although sources of own-source revenue are diverse, this study focuses on the three main municipal taxes: the Urban Property Tax (IPTU), the Tax on Services of Any Nature (ISS), and the Real Estate Transfer Tax (ITBI) (Khair;
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Vignoli, 2001). Revenue figures were considered in gross terms, without deductions, ensuring comparability among local governments.

However, it is recognized that municipal financial sustainability involves multiple dimensions and is not limited solely to revenue-raising capacity. Thus, in addition to this initial metric, a complementary analysis will be conducted inspired by Oliveira and Oliveira (2025), using variables from the Firjan Fiscal Management Index (IFGF). This index allows for a more comprehensive complementary assessment of sustainability, incorporating dimensions such as autonomy, personnel expenses, liquidity, and investments, which enables the analysis to extend beyond revenue-raising capacity to a broader and more integrated interpretation of the fiscal capacity and financial management of Brazilian municipalities, incorporating elements of efficiency and quality of public spending, thus thereby providing a robust basis for discussing the results and confirming the thesis of “fiscal laziness” observed in the study.

4. RESULTS AND DISCUSSION

Table 1 presents descriptive statistics on the level of dependence of municipalities in Minas Gerais on the FPM for a more recent period, using data from 2013 to 2022. Regarding the range of variation, it ranges from a minimum of 3.8% to a maximum of 68.3%; in the study by Massardi and Abrantes (2015), the range was 4.61% to 75.28%. Although the maximum has decreased, there is still a high level of dependence, indicating that some municipalities have very low dependence, while others are heavily dependent.

In this context, the persistence of a high degree of dependence in some municipalities highlights the study’s central concern regarding financial sustainability and the hypothesis that such high dependence may lead to unsustainability. The average FPM dependency rate found is 40.7%, with a standard deviation of 12.96%; it can be observed that this is lower than the average of 45.5% reported by Massardi and Abrantes (2015) for the period from 2005 to 2009. Despite this slight reduction in the average, as highlighted by Tomio (2002), the FPM continues to represent a significant portion of municipal revenues, reinforcing its position as a valuable source of revenue for Brazilian municipalities, especially smaller ones, and ensuring the continuity of most emancipated municipalities.

Table 1 – Descriptive analysis of the levels of dependence of municipalities in Minas Gerais on the FPM

Variable	Minimum	Maximum	Mean	Standard Deviation	Skewness	Kurtosis
FPM Dependency	3,8	68,3	40,7	12,96	-0,5	2,9

Source: prepared by the author (2025).

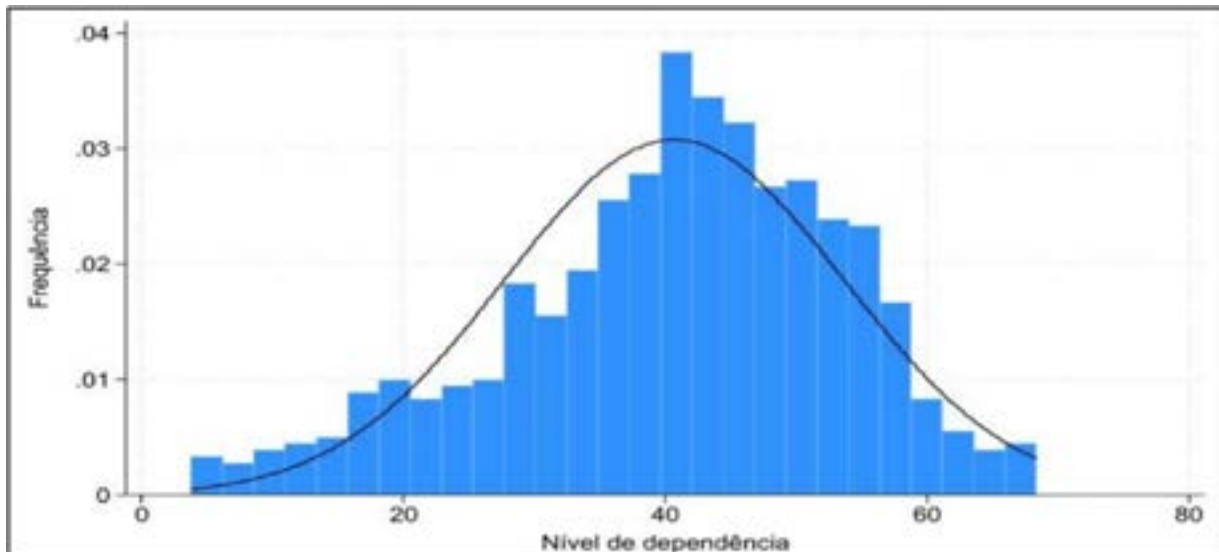
Skewness measures the degree of symmetry of data distribution, showing whether the data are distributed uniformly around the mean (Passos, 2020). According to Hair *et al.* (2009), a distribution is considered asymmetric only if the skewness coefficient is greater than +1 or less than -1. In this study, the skewness value is -0.5, indicating that it falls within this range, allowing the distribution to be considered close to normal, which permits the reliable use of the data for statistical inferences.

On the other hand, kurtosis is a statistical measure that, according to Passos (2020), serves to assess the flatness of a distribution curve. In this context, as shown in Table 1, the kurtosis value is 2.9, and because it is greater than zero, it indicates a more leptokurtic curve, that is, it has a higher peak compared to the normal distribution, indicating that the data are more concentrated around the mean.

In the context of Brazilian fiscal federalism, which seeks a balance between autonomy and cooperation, the FPM is a central mechanism for intergovernmental transfers. Oates (1999) notes that fiscal federalism aims to divide responsibilities and revenue sources to increase the effectiveness of public administration. However, the high level of dependence shown in Table 1 suggests a challenge to this autonomy.

To complement the descriptive statistics presented in Table 1, Figure 1 is presented, showing the distribution of these dependency levels according to frequency.

Figure 1. Distribution of dependency levels of municipalities in Minas Gerais relative to the FPM



Source: prepared by the author based on data from FINBRA (2025).

The phenomenon of “fiscal laziness” is a central concern in this scenario. Authors such as Filho *et al.* (2023) and Araújo *et al.* (2020) argue that high dependence on resources such as the FPM can reduce municipalities’ fiscal efforts toward their own-source revenue and increase their financial fragility. Thus, the average 40.7% dependence on the FPM, combined with the maximum of 68.3%, provides empirical evidence supporting the plausibility of this “fiscal laziness” in a significant portion of municipalities in Minas Gerais. In this situation, the fungibility of money, according to the “Oates’ Veil Hypothesis” presented by Louzano *et al.* (2020), may exacerbate the problem, as it causes local governments to rely less on local tax collection; consequently, the oversight and collection of these taxes may become laxer.

To classify the municipalities, several criteria are used, as summarized in Table 2, where high dependence is defined as a score above 53.66%, medium between 27.74% and 53.66%, and low as below 27.74%.

Table 2. Classification criteria for municipalities in Minas Gerais regarding dependence on the FPM

Criterion	Score	FPM Dependency
Below Average (1 standard deviation below)	$E \leq 27,74$	Low
Medium (+/- 1 standard deviation)	$27,74 < E \leq 53,66$	Medium
Above average (1 standard deviation above)	$E > 53,66$	High

Source: prepared by the author based on data from FINBRA (2025).

This categorization is an essential step toward identifying municipalities highly dependent on the FPM and subsequently assessing their financial sustainability. By grouping the municipalities, it is possible to observe whether those in the “high dependence” category do, in fact, exhibit the characteristics of financial fragility and lower tax collection efforts described in the literature.

This regional disparity echoes the observations of Paes and Siqueira (2008) regarding regional inequalities in the distribution of tax revenues, in which more disadvantaged regions tend to become even poorer. FPM, as highlighted by Oliveira and Oliveira (2023), is a fundamental tool for the reallocation of resources and the minimization of these disparities, offering better conditions for smaller cities.

The evolution of FPM dependence over a decade (2013–2022) is presented in Table 3 for different mesoregions of Minas Gerais. It is observed that mesoregions with lower tax-raising capacity, such as Jequitinhonha, consistently exhibit high levels of dependence, ranging from 34.53% to 44.74%; while the Belo Horizonte Metropolitan Area shows lower levels, ranging from 8.90% to 11.40%. Thus, this suggests that, by receiving funds from the FPM, these municipalities may not feel incentivized to increase their local tax revenue, confirming the thesis of authors such as Araújo *et al.* (2020).

Table 3. Evolution of FPM dependency levels by mesoregion

Subregion	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Campo das Vertentes	29.18	28.77	28.67	30.00	28.66	29.52	27.42	23.16	27.46	28.91
Central Mineira	34.66	34.79	34.33	35.08	35.55	34.76	32.07	26.11	30.96	30.95
Jequitinhonha	42.55	42.21	42.42	43.04	42.73	44.74	40.86	34.53	40.14	41.30
Belo Horizonte Metropolitan Area	10.18	10.19	10.57	11.08	10.91	11.26	10.39	8.90	10.05	11.40
Northwest Minas	26.54	26.08	26.29	26.44	24.64	25.04	22.47	19.15	21.76	22.66
Northern Minas	32.71	32.11	33.47	36.05	34.55	34.74	31.91	25.83	30.59	31.58
Western Minas	27.39	26.16	26.34	26.88	25.69	26.83	25.88	21.05	24.78	25.49
South/Southwest of Minas	29.44	29.36	28.90	29.51	27.52	28.16	26.29	22.42	25.15	19.73
Triângulo Mineiro/Alto Paranaíba	15.60	15.81	16.00	16.14	14.67	15.03	13.88	11.33	14.21	14.87
Mucuri Valley	32.50	31.40	31.66	32.07	31.24	32.35	30.02	25.11	29.59	31.62
Rio Doce Valley	29.48	28.83	28.95	30.77	29.27	30.33	28.35	23.30	26.88	29.27
Zona da Mata	28.56	28.52	28.76	29.01	27.37	28.89	26.90	22.71	27.05	28.96
Average	28.23	27.85	28.03	28.84	27.73	28.47	26.37	21.97	25.72	26.39

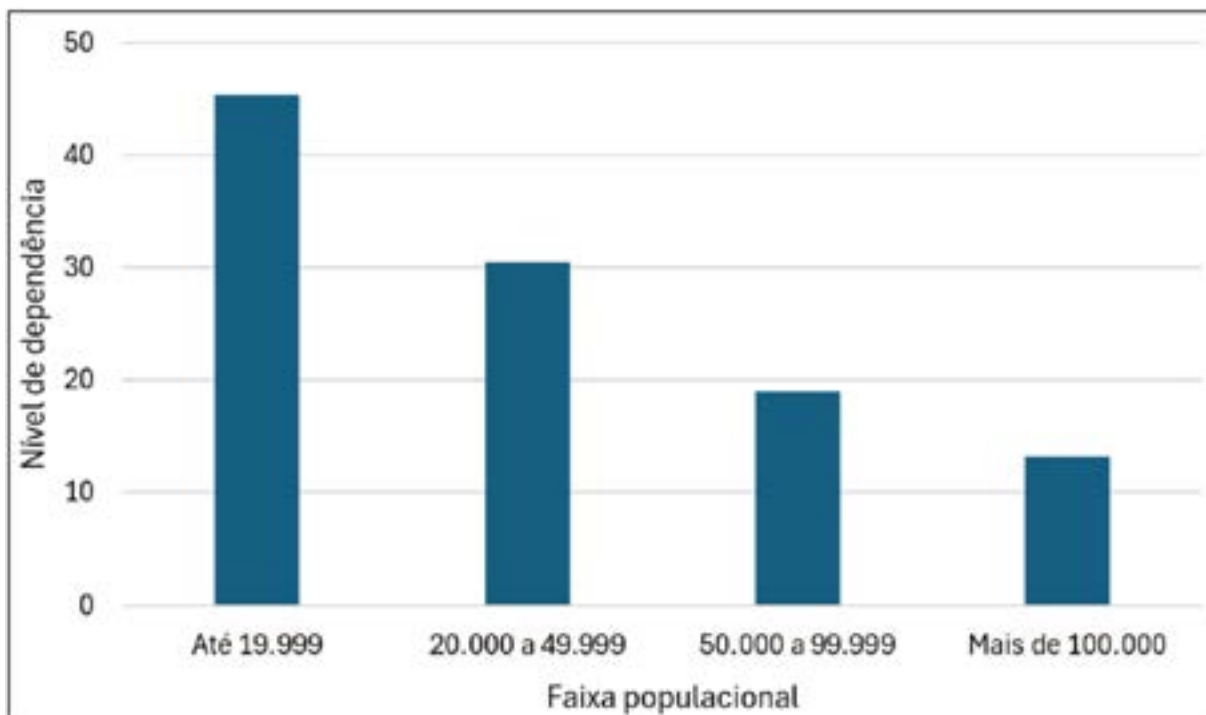
Source: prepared by the author based on data from FINBRA (2025).

In 2020, a decline in the average dependency ratio was observed for most mesoregions, which may be related to extra transfers during the COVID-19 pandemic, as noted by Granai *et al.* (2023), who show that municipalities with additional FPM transfers coped with the crisis more effectively. This perspective may demonstrate how exogenous events and emergency transfers can temporarily alter the dependency profile, but do not necessarily resolve long-term structural issues.

In addition, “fiscal laziness” (Araújo *et al.*, 2020) is another factor to note in the table, as the consistent high levels of dependence in mesoregions with lower local tax-raising capacity suggest that receiving funds from the FPM may discourage these municipalities from increasing their local tax revenue. The Belo Horizonte Metropolitan Mesoregion, for example, with its low dependence, likely has a more robust economic and tax base, allowing it greater autonomy.

To illustrate the level of FPM dependence of municipalities in relation to population size, Figure 2 presents the level of FPM dependence based on population size.

Figure 2. Level of FPM dependence by population bracket



Source: prepared by the author using data from FINBRA (2025).

First, Figure 2 provides visual evidence that smaller municipalities are the most dependent on the FPM, highlighting that policies aimed at promoting financial sustainability should focus largely on small municipalities.

The data presented directly supports the findings of Tomio (2002), who noted that the FPM is a valuable source of revenue for smaller municipalities, ensuring their continued existence. More specifically, Massardi and Abrantes (2015) concluded that "municipalities with fewer than 20,000 inhabitants are the most dependent." This dependence of small municipalities is so significant that PEC 188/2019 (the Federal Pact Constitutional Amendment Proposal) proposed the merger of municipalities deemed unsustainable, basing financial viability on the ratio of own-source revenue to total revenue, predominantly affecting small towns.

Table 4 compares various socioeconomic characteristics of municipalities in Minas Gerais in 2021, namely: P8020, Average Monthly Wage, Workers with no formal education, Per Capita Operating Expenditure, GDP per Capita, Population, and Average Population Growth; as well as the IFGF and its variables, namely Autonomy, Personnel Expenditures, Liquidity, and Investments; categorized by level of dependence on the FPM as Low, Medium, and High.

Table 4: Socioeconomic Characteristics of Municipalities in Minas Gerais by Level of Dependence on the FPM, 2021

Variables	FPM Dependency		
	Low	Medium	High
P8020	2.43	1.97	1.96
Average Monthly Salary	R\$ 2,472	R\$ 1,855	R\$ 1,829
Workers with no formal education	14%	18%	20%
Per capita operating expenditure	R\$ 3,973	R\$ 3,126	R\$ 5,002
GDP per capita	R\$ 77,329	\$21,984	\$18,689
Population	99,297	11,739	3,386
IFGF 2021	0.79	0.64	0.61
IFGF Autonomy 2021	0.90	0.36	0.09
IFGF Personnel Expenses 2021	0.91	0.81	0.87
IFGF Liquidity 2021	0.88	0.89	0.92
IFGF Investments 2021	0.45	0.51	0.56
Own Revenue	0.11	0.04	0.01

(P8020 = Ratio between income at the 80th percentile and income at the 20th percentile of formal sector wages in the municipality)

Source: prepared by the author (2025).

Table 4 provides important evidence regarding the dependence of the FPM on financial unsustainability and unfavorable socioeconomic characteristics, directly testing the central hypothesis.

The most striking finding is that municipalities with high dependency have a significantly smaller average population (3,386 inhabitants), in contrast to those with low dependency (99,297 inhabitants). This reinforces the findings in Figure 2 and the literature on the vulnerability of small municipalities.

However, the characteristics revealed provide a strong empirical basis for various theories of fiscal federalism. The smaller population, lower GDP per capita, and lower average wages in highly dependent municipalities confirm that, although the 1988 Federal Constitution granted financial autonomy to municipalities, their own revenue sources are often insufficient, especially in smaller ones.

Another point to note is the higher per capita operational expenditure in highly dependent municipalities, which may be a manifestation of the “*flypaper effect*” and the “*fiscal illusion*”—topics addressed, respectively, by Mendes *et al.* (2008) and Araújo and Siqueira (2016)—that are more pronounced in the medium- and high-dependence groups. The “*flypaper effect*” suggests that unconditional transfers (such as the FPM) cause a disproportionate increase in public spending; and “*fiscal illusion*” occurs when citizens underestimate the costs of public services,²⁴

since they are financed by external transfers, and demand more spending. This combination suggests that FPM resources may not be being used efficiently, undermining financial sustainability, as argued by Esteves *et al.* (2023).

The IFGF is a sustainability metric that analyzes municipalities' ability to remain financially healthy in the long term; thus, for a more comprehensive and effective assessment of financial sustainability, it does not rely on a single indicator (Medeiros & Silva, 2023). In this regard, it is observed that the overall IFGF demonstrates that the greater the dependence on the FPM, the lower the performance in municipal fiscal management; it then details the performance of municipalities across the four categories that comprise it.

The Autonomy indicator shows the greatest disparity and demonstrates the direct relationship between dependence on the FPM and the inability to generate own-source revenues, where the extremely low score for highly suggests a reduction in fiscal efforts toward generating their own revenue. Regarding personnel expenses, these also constitute a sustainability metric, in which all groups of municipalities demonstrate solid and relatively similar performance on this indicator, with those of low dependence reaching 0.91 and those of high dependence reaching 0.87; thus, highly dependent municipalities are not necessarily worse at controlling personnel expenses compared to those of medium dependence. In terms of liquidity, high-dependence municipalities have the best average liquidity, suggesting that they have considerable available cash.

In terms of investment, the results show an inverse relationship compared to the overall IFGF and Autonomy. High-dependence municipalities achieve the highest average of 0.56, while low-dependence municipalities achieve the lowest of 0.45. This phenomenon may be a manifestation of the “*flypaper effect*,” which, according to Mendes *et al.* (2008), suggests that unconditional transfers cause a disproportionate increase in public spending, which may include investments.

In this context, according to Oliveira and Oliveira (2024), the IFGF is an indicator that establishes a direct link to municipal financial sustainability by serving as a crucial tool in the construction of the Municipal Financial Sustainability Index (ISFM); they used its indicators to compose the “Governance” (Gov), which has a weight of 0.25 in the total ISFM calculation.

The IFGF indicators selected to be included in the ISFM were Autonomy and Investment, with weights determined individually, taking into account factors such as source, relevance, and impact on the final index, both with a weight of 0.35. The inclusion of these aspects in the Governance dimension lends greater robustness to ISFM compared to the fragile methodology

proposed by PEC No. 188, which based sustainability on a single parameter of own-source revenue. These two indicators are determined, respectively, by the relationship between revenues derived from local economic activities and the expenditures necessary to sustain their operation; and an assessment of the proportion of municipalities' total revenue allocated to investments that promote community well-being and improve the business environment (Oliveira; Oliveira, 2024).

Thus, the IFGF is incorporated into the ISFM to ensure that the assessment of Municipal Financial (Un)Sustainability considers, in addition to budgetary-financial and quality-of-life aspects, essential local governance criteria for effective public management (Oliveira; Oliveira, 2024).

Another variable in Table 4 is own-source revenue, which serves as a sustainability metric; municipalities with low dependence on the FPM had an own-source revenue ratio of 0.11 (11%), exceeding the 10% threshold considered sufficient and fair to characterize financial sustainability. Municipalities with medium and high dependence reveal extreme fragility, with own-source revenue of 0.04 (4%) and 0.01 (1%), respectively; thus, this result for the high-dependence group supports the thesis of “fiscal laziness.” Thus, these results reveal a clear inverse relationship between dependence on the FPM and the capacity to generate own-source revenue; this can result in extremely fragile fiscal autonomy and consequent financial unsustainability.

However, Table 4, which analyzes the socioeconomic characteristics of the municipalities, reveals the root cause of financial unsustainability in the highly dependent groups, providing robust evidence that confirms the study's central hypothesis. High dependence on the FPM manifests itself in the critical performance of the IFGF autonomy indicator, supporting the thesis of “fiscal laziness,” in which own-source revenue collection efforts are reduced due to the guarantee of transfers. These results, therefore, directly link structural characteristics to fiscal performance (IFGF), concluding that socioeconomic fragility is the foundation of financial unsustainability in highly dependent municipalities in Minas Gerais.

5. FINAL CONSIDERATIONS

The analysis of dependence on the Municipal Participation Fund (FPM) and its relationship with financial sustainability is of central importance, given that the FPM is a major source of revenue for Brazilian municipalities, especially smaller ones. The study sought to understand whether high dependence on the FPM hinders the financial equilibrium of these cities,

rendering them financially unsustainable, in order to fill a gap in the literature by analyzing the intersection between dependence on intergovernmental transfers and financial sustainability in an integrated manner, which, until then, had been treated in isolation.

Among the most significant findings, it was noted that the average dependence on the FPM in Minas Gerais was 40.7%, with the highest dependence concentrated in smaller municipalities (an average population of 3,386 inhabitants in the High Dependence group, compared to 99,297 inhabitants in the Low Dependence group), reinforcing the literature on the vulnerability of small towns. The analysis of socioeconomic characteristics showed that highly dependent municipalities have lower indicators, such as lower GDP per capita (R\$18,689).

The overall objective of the study, which was to measure the degree of municipalities' dependence on the Municipal Participation Fund (FPM) and compare it with their socioeconomic characteristics, was achieved through quantitative analysis of data from Minas Gerais; it was found that most municipalities with high financial dependence on the FPM exhibit characteristics that render them financially unsustainable. The results obtained provided robust evidence confirming the central hypothesis of the study: municipalities with greater dependence on the FPM tend to exhibit lower fiscal autonomy and weaker financial performance.

The achievement of the stated objectives is confirmed in relation to sustainability, which was clearly established through the use of the Firjan Fiscal Management Index (IFGF). The overall IFGF indicated that the greater the dependence on the FPM, the lower the performance in municipal fiscal management. The IFGF Autonomy indicator showed the greatest discrepancy, with an extremely low score (0.09) for highly dependent municipalities, compared to 0.90 for those with low dependence. This result demonstrates the socioeconomic and financial fragility of these municipalities and supports the thesis that high dependence reduces the fiscal effort toward self-generated revenue, confirming the concerns raised by Araújo *et al.* (2020) and Filho *et al.* (2023) regarding “fiscal laziness.”

In addition, it was observed that highly dependent municipalities have higher per capita operating expenditure. This phenomenon suggests the manifestation of the “*flypaper effect*,” in which unconditional transfers, such as the FPM, cause a disproportionate increase in public spending, and the “fiscal illusion,” in which external transfers lead citizens to underestimate the costs of public services. The manifestation of these effects indicates that resources may be being used less efficiently, compromising financial sustainability, which directly links the results obtained to the expectations of the reviewed literature.

The research offers significant contributions and is of great relevance to public managers

and the formulation of more sustainable policies, as it provides guidelines for the creation of public policies aimed at reducing dependence on external transfers and promoting more effective and independent financial management. The measures necessary to improve sustainability include promoting educational activities to raise tax awareness and seeking management efficiency to reduce unnecessary spending.

However, it is essential to highlight the methodological limitations of the study: although the initially planned methodology envisaged the use of a panel data regression model, the final analysis was based primarily on descriptive statistics. This limitation prevented the use of more robust econometric methods to examine the relationship between FPM and financial sustainability.

For future research, we suggest expanding the analysis to other states or to Brazil as a whole, which would provide a more comprehensive view of regional disparities and the dynamics of dependency; and employing more sophisticated econometric methods, such as panel data regression, in order to establish more concrete causal relationships between FPM dependency and fiscal sustainability. These suggestions provide avenues for continuing and deepening research on fiscal sustainability in the context of Brazilian fiscal federalism.

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