

# Municipal Fiscal Health in Latin America

EDITORS | Martín Ardanaz, Andrés Muñoz, and Enid Slack



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# Acronyms

<b>AFP</b>	pension fund administrators
<b>CCM</b>	chronic child malnutrition
<b>CEER</b>	Centro de Estudios Económicos Regionales
<b>CHIP</b>	Consolidador de Hacienda e Información Pública
<b>CONAPO</b>	National Population Council
<b>DANE</b>	National Department of Statistics
<b>DNP</b>	National Planning Department
<b>ECH</b>	Continuous Household Survey
<b>ENH</b>	National Household Survey
<b>ENOE</b>	National Survey of Occupation and Employment
<b>FONCOMUN</b>	The Municipal Compensation Fund
<b>FTMS</b>	Financial Trend Monitoring System
<b>FUT</b>	formulario único territorial
<b>GDP</b>	gross domestic product
<b>GFOA</b>	Government Finance Officers Association
<b>GFS</b>	government finance statistics
<b>GVA</b>	gross value added
<b>IBGE</b>	Instituto Brasileiro de Geografia e Estatística
<b>ICA</b>	industry and commerce tax
<b>IDB</b>	Inter-American Development Bank
<b>IDF</b>	Fiscal Performance Index
<b>INEI</b>	National Institute of Statistics and Informatics
<b>INEGI</b>	Instituto Nacional de Estadística, Geografía e Informática
<b>INSS</b>	Social Security National Institute
<b>IPCA</b>	Consumer Price Index
<b>IRRF</b>	income tax withheld at source
<b>ISS</b>	tax on services

<b>ITBI</b>	tax on real estate conveyance
<b>LAC</b>	Latin America and the Caribbean
<b>MDM</b>	Municipal Performance Measurement
<b>MEF</b>	Ministry of Commerce and Finance
<b>NYU</b>	New York University
<b>OECD</b>	Organization for Economic Cooperation and Development
<b>PSAB</b>	Public Sector Accounting Board
<b>SIAF</b>	Sistema Integrado de Administración Financiera
<b>SNG</b>	subnational governments
<b>SO</b>	social organizations
<b>SUNAT</b>	Superintendence of Tax Administration
<b>TCA</b>	total capital assets
<b>UFRJ</b>	Federal University of Rio de Janeiro UFRJ
<b>VAT</b>	value added tax

# Introduction

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BY MARTIN  
ARDANAZ,  
ANDRÉS  
MUÑOZ, AND  
ENID SLACK

Cities are important drivers of productivity, innovation, and economic growth. To achieve their full economic potential, they need to be able to deliver high-quality public services to their residents and businesses. Rapid urbanization in Latin American cities, combined with decentralization reforms in many countries, has meant that municipal governments are responsible for delivering an increasing number of services—“hard” services such as water, sewers, roads, and transit; and “soft” services such as cultural facilities, parks, and libraries that will attract skilled workers, and services that will meet the social needs of a rapidly growing and diverse population. Cities not only have to maintain existing services and infrastructure; they must also build new infrastructure. The extent to which they can carry out all of these responsibilities depends at least partially on the state of their fiscal health—their ability to meet their service, infrastructure, and financial obligations with the revenue available to them.

Are large cities in Latin America and the Caribbean (LAC) fiscally healthy? What drives municipal fiscal health in the region? Are cities able to achieve financial solvency? What does it mean for the maintenance and expansion of urban infrastructure? And what can be done about it? These questions motivate this regional study. This book assesses the fiscal health of large cities in Latin America and explores the factors that drive it. A primary purpose of the book is to provide a methodology for cities to assess their own fiscal health, given available data. As such, it will help to determine whether fiscal distress is building up in selected large cities across the region and to understand whether and how financial solvency, public service delivery, and the maintenance and expansion of urban infrastructure may be compromised.

The systematic analysis and comparative evidence of the state of municipal fiscal health gathered in this volume will be useful for local governments, national authorities, and citizens. For local governments, it will help them make fiscal policy choices that enable them to avoid a fiscal crisis or prevent future interruptions of service delivery, thereby improving their performance and allowing them to preserve and strengthen their autonomy. For national authorities, it will provide insights to revise the intergovernmental fiscal framework (i.e., revenue and expenditure allocations, transfer systems, and transparency and fiscal responsibility frameworks) and create incentives for local revenue mobilization, efficient

spending, and responsible borrowing. For the general public, it will help them understand how well their cities are being managed.

The case studies document the state of fiscal health in 80 main cities in four LAC countries (Brazil, Colombia, Mexico, and Peru) from 2010 to 2017. The starting point of this research is the belief that new concepts, approaches, and methodologies should be far more comprehensive and integrated to better reflect that the fiscal health of cities lies in their ability to provide the level and quality of services and infrastructure required by citizens and firms to foster local economic growth and development. The cases employ a novel methodology put forth by Bird and Slack (2015), which has been adapted to the context and data availability of LAC countries. First, the methodology embraces the short and long-term perspectives, by looking closely at both fiscal health and fiscal sustainability through an analysis of operating balances that would determine whether cities can afford to maintain existing infrastructure and build new infrastructure. Second, it explores external and internal factors such as population and tax base growth and the influence and interference of upper levels of government, and the capacity for debt financing and financial management. This information helps predict and prepare for shocks and adapt internal strengths and strategies to deal adequately with them. Finally, the methodology combines budgetary measures, such as revenue and expenditure sources, levels, and trajectories, and financial measures such as debt levels and the relationship between assets and liabilities. To the best of our knowledge, no previous study has tried to systematically analyze municipal fiscal health in the region in such a comprehensive and integrated manner. This is the main contribution of this work.

This monograph is structured as follows. Chapter 1 explains the rationale for the regional research and presents a brief overview of the performance of fiscal decentralization systems in LAC and how the intergovernmental fiscal framework in place and the ongoing COVID-19 pandemic affect the fiscal health of municipalities in the region. Chapter 2 reviews the literature on the various measures that have been used to evaluate the fiscal health of cities and summarizes the methodologies to determine whether a city is fiscally healthy. It makes the point that the way in which fiscal health is measured depends on the rationale for measuring it in the first place. Chapter 3 suggests some measures and lays out a methodology that cities in LAC could use to determine whether they are fiscally healthy or facing fiscal distress. Chapters 4 through 7 present case studies on Brazil, Colombia, Mexico, and Peru. Finally, Chapter 8 presents the main findings from the case studies, provides a comparative analysis of municipal fiscal health in the four countries, and concludes by identifying policy implications.

Chapter

# 01

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## FISCAL DECENTRALIZATION AND LOCAL GOVERNMENT PERFORMANCE IN LATIN AMERICA AND THE CARIBBEAN

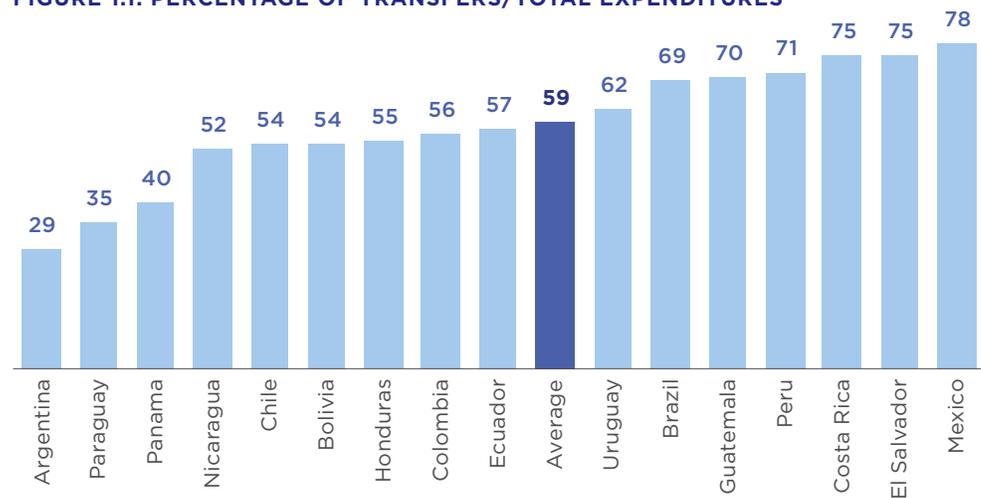
MUNICIPAL FISCAL  
HEALTH IN  
LATIN AMERICA



For about three decades, most LAC countries have been implementing decentralization reforms, aimed at transferring responsibilities for financing and delivering local services to subnational governments (SNGs). In all cases, the assignment of spending functions has been overwhelmingly greater than the revenue sources granted to finance them sustainably. This uneven process has created large and growing vertical fiscal imbalances at the local level. Fiscal transfers have partially filled the gap.

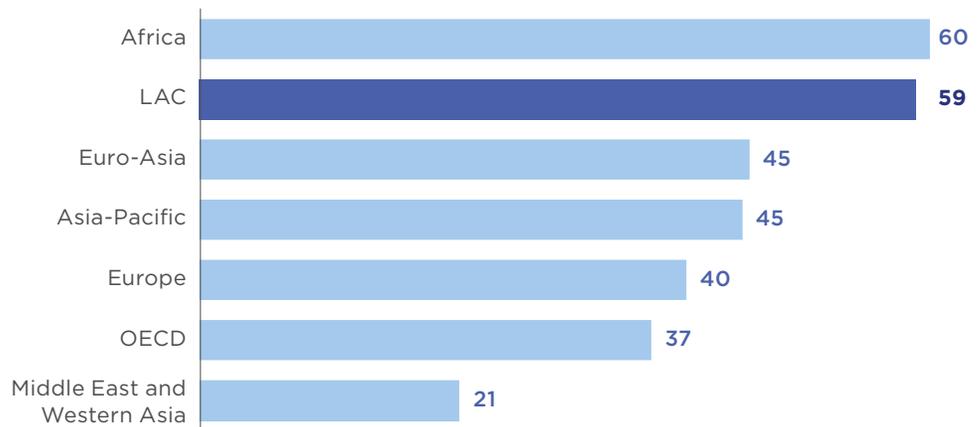
Municipal LAC governments finance, on average, about 60 percent of their spending responsibilities with transfers from central governments (see Figure 1.1). This vertical gap, which represents on average 2.5 percent of their gross domestic product (GDP), is one of the highest levels of dependency in the world, together with that experienced by municipal governments in Sub-Saharan Africa (see Figure 1.2). The vertical fiscal imbalance and the heavy dependency on transfers are key factors that have shaped the fiscal health of municipalities in LAC. In some countries, the heavy reliance on federal transfers incentivizes poor revenue effort in cities, inefficient and opaque spending, loose fiscal discipline, and low accountability, among other problems (IDB, 2018).

**FIGURE 1.1. PERCENTAGE OF TRANSFERS/TOTAL EXPENDITURES**



Source: Authors' calculations based on national accounts collected by the Inter-American Development Bank (IDB) subnational fiscal platform; OECD Stats and OECD/UCLG World Observatory on Subnational Finance and Investment.

**FIGURE 1.2. FISCAL TRANSFERS AS A PERCENTAGE OF TOTAL EXPENDITURES OF MUNICIPAL GOVERNMENTS IN LAC, 2018**

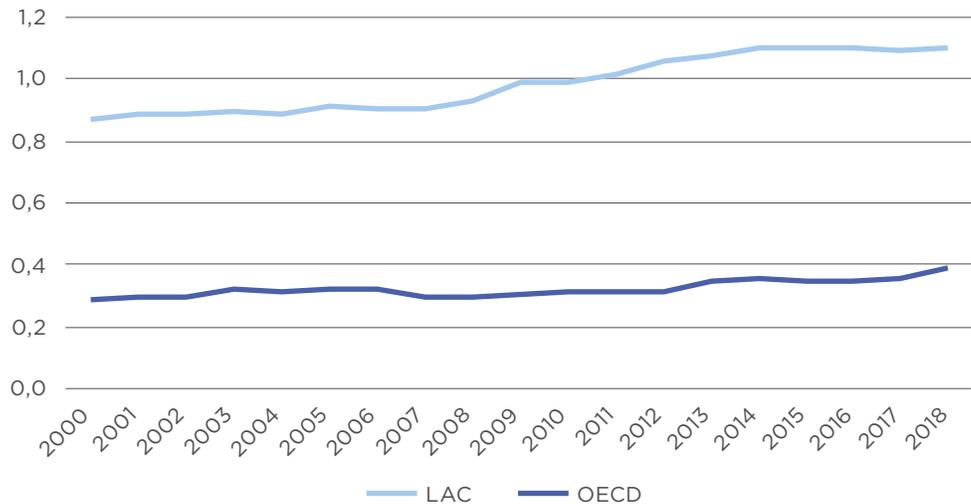


Source: Authors' calculations based on national accounts collected by the IDB subnational fiscal platform; OECD Stats and OECD/UCLG World Observatory on Subnational Finance and Investment.

Note: Europe shows the average of European countries that are not OECD members.

While the degree of local fiscal autonomy is low, central governments have assigned municipalities with the task of collecting a few important taxes, such as the property tax—except in El Salvador. Despite its revenue potential, the performance of this tax is lackluster. On average, municipalities in LAC collected about 0.4 percent of GDP in property taxes in 2018, which is about one third of the level collected in OECD countries belonging to the Organization for Economic Cooperation and Development (OECD) (1.1 percent of GDP). In addition, during the last two decades, while OECD countries increased property tax collection, collection by LAC municipalities remained fairly constant (see Figure 1.3). In most LAC countries, the property tax has lost prominence to other taxes such as those levied on economic transactions (only in Paraguay, Peru, and Uruguay the property tax generates the most revenues for municipalities). For instance, in Brazil, in 94 percent of municipalities the motor vehicle tax produces more revenue than the property tax.

**FIGURE 1.3. PROPERTY TAX COLLECTION (PERCENTAGE OF GDP) OF MUNICIPAL GOVERNMENTS IN OECD AND LAC, 2000-18**



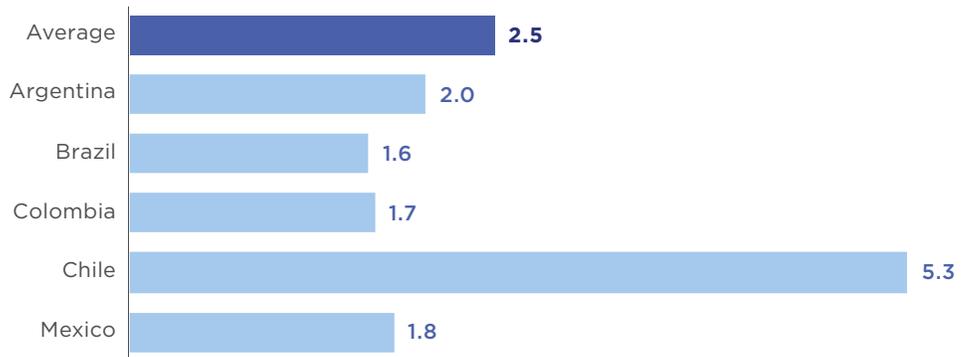
Source: Authors' calculations based on OECD statistics.

Another important feature of LAC's decentralization framework is the existence of significant horizontal fiscal imbalances, which affect the state and prospects for municipal fiscal health in different ways. Revenues are very unequally distributed within countries, with large cities having more robust and dynamic revenue bases. For instance, there are marked differences in the amounts of property tax collected in municipalities, with the largest share of revenue collected in very few cities. In Brazil, about 12 capital cities collect 50 percent of total property tax revenues; in Costa Rica, eight local governments collect 46 percent of total property tax revenues; and in Colombia, the top 25 percent of municipalities collect four times the amount raised by the other 75 percent (see Figure 1.4).

On the expenditure side, major fiscal disparities arise from different expenditure needs and service costs that the transfer systems do not adequately address. In 2018, the ratio between the 25 percent of municipal governments with the highest per capita spending and the 75 percent with the lowest per capita spending was, on average, 2.5/1. No country in LAC has adopted an explicit equalization transfer system, exclusive and sizable, that compensates for the different fiscal capacities and expenditure needs of SNGs (Muñoz et al., 2018). The regional fiscal disparities are likely to be causing unequal access to public services, as shown in Figure 1.5 with respect to sewerage provision, where universal

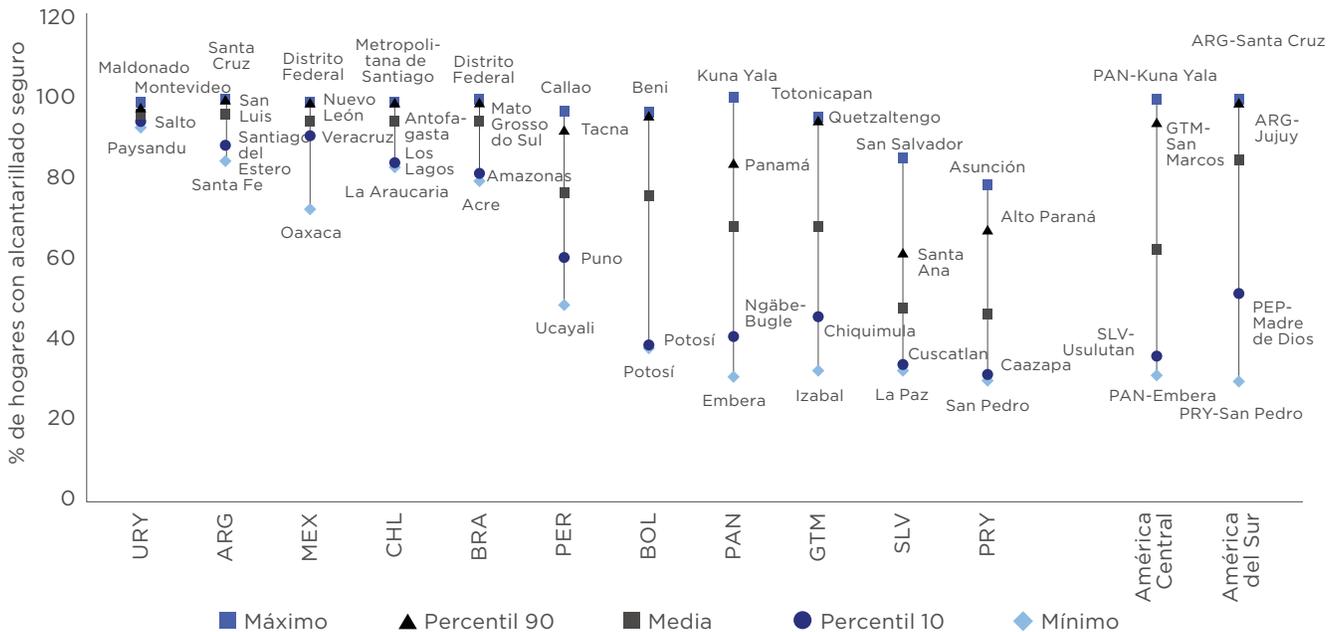
access is more often found in capital cities and surroundings, except in Paraguay and El Salvador (Busso and Messina, 2020).

**FIGURE 1.4. DISPARITIES IN PER CAPITA EXPENDITURES (RATIO OF AVERAGE PER CAPITA EXPENDITURES IN THE TOP 25TH TO THE BOTTOM 25TH PERCENTILE) OF LOCAL GOVERNMENTS IN LAC, 2018**



Source: Authors' calculations based on national accounts collected by the IDB's subnational fiscal platform.

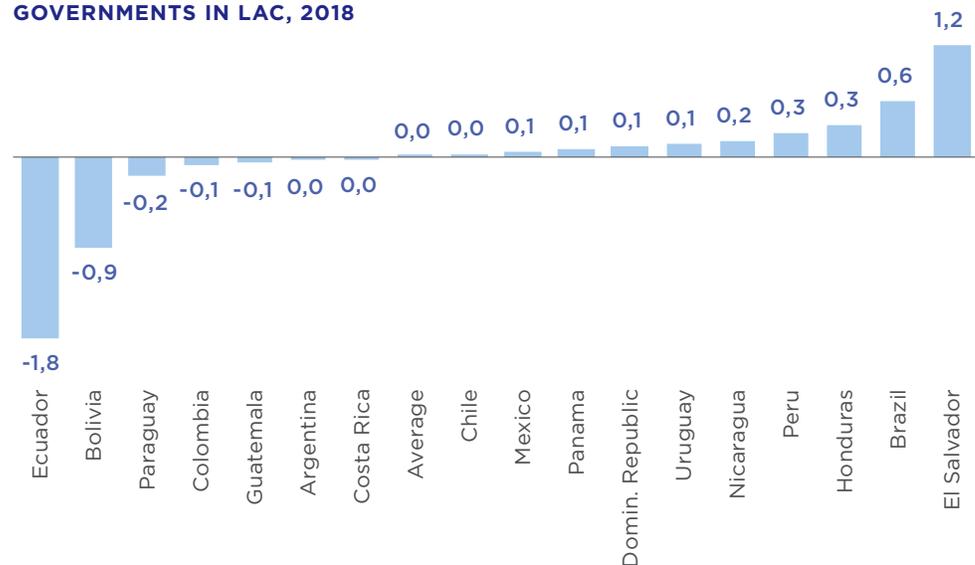
**FIGURE 1.5. COVERAGE OF SEWERAGE OF MUNICIPAL GOVERNMENTS IN LAC, 2000-18**



Source: Busso and Messina (2020).

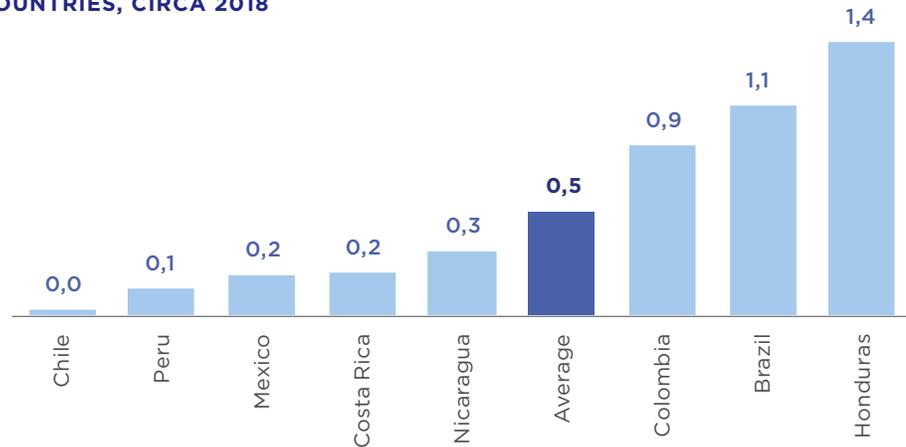
Finally, city governments exhibit fragile fiscal sustainability. Although both fiscal deficits and debt levels at the local level were on the rise after the financial crisis of 2008–09, they remain relatively low and in most cases are still manageable, most likely reflecting the limited and tightly controlled access to credit—except for federal countries. On average, municipalities had a deficit of around 0.1 percent of GDP and debt levels of nearly 0.5 percent of GDP in 2018 (see Figure 1.6). Nonetheless, this apparent fiscal sustainability conceals a pro-cyclical fiscal behavior, often triggered by growing current expenditures and rigid fiscal frameworks and rules that lead to declines in subnational public investment. In Brazil, for instance, Castro and Garson (2021) show that municipalities reduced investments significantly since 2016, from 0.75 percent of GDP to 0.48 percent in 2018, a level that they estimate does not even cover depreciation rates. These reductions in capital funding are likely affecting public service delivery and infrastructure.

**FIGURE 1.6. FISCAL BALANCE AS A PERCENTAGE OF GDP MUNICIPAL GOVERNMENTS IN LAC, 2018**



Source: Authors' calculations based on national accounts collected by the IDB subnational fiscal platform.

**FIGURE 1.7. MUNICIPAL DEBT AS PERCENTAGE OF GDP OF SELECTED LAC COUNTRIES, CIRCA 2018**



Source: Authors' calculations based on national accounts collected by the IDB subnational fiscal platform.

## The Impact of the COVID-19 Pandemic

The pandemic has hit LAC's local governments hard, not only exacerbating existing structural problems related to vertical fiscal imbalances, regional fiscal disparities, and fiscal fragility, but also posing new ones. This situation will likely affect the state of their fiscal health. Starting in 2020, the crisis is reducing municipal revenues and increasing expenditures, exacerbating the vertical fiscal gaps. In Brazil, for example, Castro and Garson (2021) show that tax revenues fell by 3 percent in real terms from January to October 2020, vis-à-vis the same period in 2019. Likewise, in Colombia, municipal tax revenues fell by 1 percent in the first quarter of 2020, but the main decline came in non-tax revenues, which dropped by about 42 percent. Also in Colombia, property tax revenues deteriorated significantly in the same period, with a decline of approximately 33 percent, resulting from the change made in the schedule of tax payments as a measure to alleviate the impact of the pandemic on taxpayers.

In terms of spending, addressing the pandemic at the local level has required significant increases in expenditures in the areas of health care, social protection and citizen security, principally through higher current expenditures to pay for expanded health and welfare services. In all Brazilian municipalities, spending on health and other social programs increased about 18 and 12 percent, respectively (Castro and Garson, 2021). By contrast, the contracting fiscal space resulting from declining own revenues and rising expenditures have translated in lower levels of investment. At the same time, the pandemic is forcing both national and local governments to reallocate resources for the emergency, pulling them away from key infrastructure projects, which are being either halted and/or postponed. In Colombia, the National Planning Department (Departamento Nacional de Planificación, or DNP) estimates that municipalities reduced capital investments by 57 percent in the first semester of 2020.

Fortunately, traditional and emergency fiscal transfers from central governments and the use of stabilization funds filled this gap in 2020 and helped keep with total revenue levels similar to previous years. In Brazil, federal transfers increased 17.5 percent between January and October of 2020, while in Colombia fiscal transfers increased 13 percent in the first quarter. Mexico used resources from the Subnational Revenue Stabilization Fund (Fondo de Estabilización de los Ingresos de las Entidades Federativas, or FEIEF) to compensate for lower shared revenue. Nonetheless, it is projected that, with lower national growth rates in the coming months, municipalities will receive less shared revenue. In Mexico, federal transfers are expected to decline by almost 6 percent in 2021, mostly led by significant reductions in shared revenue.

These actions, in addition to other emergency packages put forth by most countries in LAC, including deferment of debt payments, have helped local governments balance their fiscal budgets and obtain the liquidity needed while discouraging the acquisition of further debt. In Mexico, for instance, the consolidated debt of municipalities remains virtually the same (at MXN 40 billion).

Furthermore, the pandemic is having asymmetrical regional impacts which may further amplify existing regional fiscal disparities. These heterogeneous effects are based on the patterns of the spread of the disease, lockdown policies, and the current structures and diversification of economic and tax bases. In Brazil, declines in tax revenue have been greater in the largest municipalities (about a 6 percent drop in real terms, except for Sao Paulo),

primarily because of the lower collection of ISS tax on services (or ISS) revenues associated with the decline in economic activities. Similarly, in Colombia, the pandemic's worst effects were felt in the largest cities and metropolitan areas, where most of the cases and deaths occurred. With the sudden lockdown, unemployment rates in the 13 main cities and metro areas reached 24 percent vis-à-vis the national average of 20 percent, up from 10 percent before the crisis.

The pandemic is likely to worsen the fiscal health and sustainability of cities. Sluggish recovery will mean lower revenues and transfers, greater expenditure needs, and liquidity and debt pressures. If this scenario materializes, it will likely dampen service delivery and limit the maintenance and expansion of infrastructure. The crisis will also affect the fiscal position of municipalities and their ability to deal with new challenges emerging from the need to prepare cities for future crises, like expanding the coverage and continuity of local government services, expanding connectivity and fostering digital transformation of municipal governments, and building fiscal resilience by devising and implementing financial strategies for risk management related to climate change and the occurrence of natural disasters, coupled with greater investment in resilient urban infrastructure.

Chapter

# 02

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BY  
ENID SLACK

## REVIEW OF THE LITERATURE ON MEASURES AND METHODOLOGIES TO ASSESS MUNICIPAL FISCAL HEALTH

MUNICIPAL FISCAL  
HEALTH IN  
LATIN AMERICA



Municipal fiscal health can be defined as the ability of a local government to meet its expenditure requirements and financial obligations with the revenue available to it, both now and in the future. Fiscal health is important to ensure that citizens' needs are met at a reasonable cost and that there are no surprises (e.g., sudden tax increases or cuts in services). Although the concept of municipal fiscal health is fairly straightforward, there are many ways to measure it. This chapter reviews the various measures that have been proposed in the literature, which is largely based on North American and European jurisdictions.

## Measures of Fiscal Health

In practice, how fiscal health is measured depends, in large part, on the purpose for carrying out the measurement, the context in which the measurement is to be used, and the available information. For example, a credit rating agency is interested in a city's ability to repay its loans but is less interested in the state of the infrastructure or the quality of the services being delivered. Municipalities in Latin America depend more heavily on intergovernmental transfers than municipalities in other parts of the world, and this difference plays a part in the determination of their municipal fiscal health. They have also received more bailouts than cities in other countries. All of these considerations need to be taken into account when devising appropriate measures of fiscal health. For this reason, the measures proposed in this section take a holistic approach to measuring municipal fiscal health.

Table 2.1 illustrates how different measures of fiscal health reflect the different reasons for measuring it. Indicators may be used to assess the quality of financial management, develop a credit rating for a city, understand which cities are facing severe fiscal distress, or as part of the design of an equalization transfer formula. Not surprisingly, although many of the measures overlap, there are some differences.

TABLE 2.1. MEASURES OF FISCAL HEALTH

INDICATORS	FINANCIAL MANAGEMENT	CREDIT RATINGS	FISCAL DISTRESS	EQUALIZATION TRANSFERS
RELEVANT MEASURES	<ul style="list-style-type: none"> <li>• Sustainability: maintain services and meet obligations without increasing taxes or debt</li> <li>• Flexibility: ability to increase taxes or debt</li> <li>• Vulnerability: changes to transfers or external risks</li> </ul>	<ul style="list-style-type: none"> <li>• Economic strength</li> <li>• Financial strength               <ul style="list-style-type: none"> <li>• Debt profile</li> <li>• Governance and management structure</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Structural: long-term debt</li> <li>• Economic: erosion of the tax base</li> <li>• Demographic: population decline</li> <li>• Institutional: management factors</li> </ul>	<ul style="list-style-type: none"> <li>• Expenditure need: demographics, socioeconomic characteristics, geography</li> <li>• Fiscal capacity: size of the tax base</li> </ul>

Source: Bird and Slack (2015).

## Financial Management

Fiscal health measures are used extensively to determine how well a municipality is being managed financially. Fiscal health in this context is measured by the financial condition and the financial position of the city.

A city's financial condition refers to its ability to meet all of its financial obligations.<sup>1</sup> Canada's Public Sector Accounting Board (PSAB) provides a useful description of the characteristics of the fiscal condition of governments under three headings: sustainability, flexibility, and vulnerability, and suggests some possible indicators (see Table 2.2).<sup>2</sup>

1 Other definitions take a longer-term approach by including a government's ability to continue to meet its obligations over time (Sohl et al., 2009).

2 The PSAB is a board of the Canadian Institute of Chartered Accountants. In the Province of Ontario, municipal accounts must adhere to the general accounting principles established by the PSAB. Similar indicators have been used as measures of municipal fiscal health in Tassonyi (1994) and Reinhart and Rogoff (2009). These indicators are also used with respect to sovereign borrowers. For a more detailed discussion of the PSAB methodology, see Bird (2015).

TABLE 2.2. MEASURING FINANCIAL CONDITION: PSAB APPROACH USED IN CANADA

CONCEPT	DEFINITION	POSSIBLE INDICATORS
SUSTAINABILITY	<ul style="list-style-type: none"> <li>Ability to maintain existing programs and services and meet financial obligations without increasing debt or taxes</li> </ul>	<ul style="list-style-type: none"> <li>Ratio of outstanding debt to annual revenue</li> <li>Ratio of financial assets to liabilities</li> </ul>
FLEXIBILITY	<ul style="list-style-type: none"> <li>Ability to increase debt or taxes</li> </ul>	<ul style="list-style-type: none"> <li>Ratio of debt service cost to revenues               <ul style="list-style-type: none"> <li>Ratio of debt to assessment</li> </ul> </li> <li>Ratio of own-source revenues to assessment               <ul style="list-style-type: none"> <li>Effective tax rate</li> </ul> </li> </ul>
VULNERABILITY	<ul style="list-style-type: none"> <li>Risks (transfers or external shocks)</li> </ul>	<ul style="list-style-type: none"> <li>Ratio of transfers to total revenues</li> <li>Proportion of population on general welfare</li> </ul>

Source: Bird (2015).

Sustainability is the degree to which a government can maintain its service commitments to the public and its financial commitments to creditors and employees without increasing debt or raising taxes (PSAB, 2007). Persistent operating deficits or a trend of an increasing share of debt charges in current revenues suggest an unsustainable fiscal condition. For local governments, the ratio of outstanding debt to annual revenue provides an indication of the future revenue that may be encumbered to finance past spending (PSAB, 2007).<sup>3</sup> A related measure is the ratio of financial assets to financial liabilities (including post-employment benefits such as pension obligations) which, if less than one, indicates the extent to which future revenues must be used to pay for past events.

Flexibility, or revenue capacity, is the degree to which a government can increase the relative levels of debt or taxes to meet its service commitments to the public and financial commitments to creditors, employees, and others.

3 Alternatively, a low debt ratio may mean that no one is willing to lend to the municipality.

For local governments, the ratio of public debt charges (debt service) to own-source revenues is an indicator of flexibility in spending (PSAB, 2007). An increase in this indicator over an extended period of time during a period of relatively stable interest rates means that the government has consistently chosen to borrow instead of increasing taxation or user fees to meet its financial and service commitments. Increasing borrowing will eventually have an impact on flexibility, assuming that debt service takes priority over other mandatory expenditure commitments.<sup>4</sup>

For local governments that rely almost entirely on property taxes with access to very few other taxes, flexibility is also captured by the debt-to-assessment ratio where assessment reflects the size of the property tax base. A rise in this ratio means that municipal fiscal capacity is impaired either through a reduction in the tax base or an increase in mandatory expenditure resulting from increased indebtedness. With respect to taxes, the ratio of own-source revenues to taxable assessment is commonly used. A change in taxable assessment or its growth rate relative to own-source revenues could influence a municipality's flexibility (PSAB, 2007).<sup>5</sup> If taxes are used as a measure of own-source revenue, the ratio of own-source revenues to taxable assessment is simply the effective tax rate.

Lastly, the degree of vulnerability of a local government can be a function of either transfer dependency or the risks created by exogenous shocks that impact its tax base (e.g., a downturn in the economy or a pandemic). Transfer dependency, which as noted earlier is very high in LAC cities, is usually measured by the ratio of transfers to total revenues. If data on transfers is not available, another measure of vulnerability to shocks might be the proportion of the population receiving social assistance. If there is a downturn in the economy, for example, the need to make expenditures on social assistance will increase, which will affect fiscal health.

In contrast to financial condition, financial position measures relative fiscal health. Governments are ranked against an average for each indicator on measures such as cash and cash equivalents, net debt, nonfinancial assets, and accumulated surplus/deficit. Although exogenous factors may affect measures of financial condition and position (such as a downturn in the economy or an increase in interest rates), they are largely the result of

4 "Failing to do so would impair its future ability to borrow or to roll over its existing debt." (PSAB, 2007: 11). Since SNGs do not control monetary policy, inflation cannot be used as an alternative to debt service.

5 Although household income may be a better measure of flexibility, annual data for this indicator are not generally available.

policy choices made at the municipal level.<sup>6</sup> In other words, in this analysis, the strength of financial management has an important impact on the financial condition of the city.

Table 2.3 provides examples from two studies of measures that are used or have been proposed to assess the financial condition of local governments in the United State: Brown’s (1993) 10-point test used in the state of Michigan and a solvency test proposed by Wang, Dennis, and Tu (2007).

**TABLE 2.3. TWO APPROACHES TO MEASURING FINANCIAL CONDITION/FINANCIAL POSITION**

BROWN’S (1993) 10-POINT TEST	SOLVENCY TEST (WANG, DENNIS, AND TU, 2007)
<ul style="list-style-type: none"> <li>• Total revenues per capita</li> <li>• Intergovernmental revenue/total revenue</li> <li>• Property tax or own-source revenue/total revenues                             <ul style="list-style-type: none"> <li>• Total expenditures per capita</li> <li>• Operating surplus/operating revenues</li> </ul> </li> <li>• General fund balance/general fund revenues</li> <li>• Enterprise funds working capital coverage                             <ul style="list-style-type: none"> <li>• Long term debt/assessed value</li> <li>• Debt service/operating revenues</li> </ul> </li> <li>• Postemployment benefit assets/liabilities</li> </ul>	<p><b>Cash solvency:</b></p> <ul style="list-style-type: none"> <li>• (Cash plus equivalents plus investments)/current liabilities</li> <li>• (Cash plus equivalents plus investments plus receivables)/current liabilities</li> <li>• Current assets/current liabilities</li> </ul> <p><b>Budget solvency:</b></p> <ul style="list-style-type: none"> <li>• Total revenues/total expenditures</li> <li>• Surplus/deficit per capita</li> </ul> <p><b>Long-run solvency:</b></p> <ul style="list-style-type: none"> <li>• Restricted and unrestricted assets/total assets</li> <li>• Long-term liabilities/total assets</li> <li>• Long-term liability per capita</li> </ul> <p><b>Service solvency:</b></p> <ul style="list-style-type: none"> <li>• Tax per capita</li> <li>• Revenue per capita</li> <li>• Expenses per capita</li> </ul>

Source: Based on information in McDonald (2017).

6 Two municipalities may make different choices, but still be equally fiscally healthy. For example, one municipality might choose a high level of service and high taxation, and another might choose a low level of service and lower taxation. Decisions made by senior levels of government also affect the municipal financial condition. For example, stimulus spending by the national government will have an impact on financial condition as well as transfers from state or provincial governments. Senior government standards for service delivery and other regulations also affect the financial condition of a city.

Each of these approaches to measuring fiscal health is slightly different in terms of the choice of indicators. Brown's (1993) 10-point test uses measures that reflect the expenditures and sources of revenue of local government as well as information on the presence of a surplus or deficit, the state of fund balances and debt, and post-employment benefits. The advantage of this test is that the data are readily available in the financial reports of local governments. Yet, as with other studies that propose various fiscal health indicators, there is little or no research to support whether these are necessarily the best indicators (McDonald, 2017).

The solvency test proposed by Wang, Dennis, and Tu (2007) focuses on the financial condition of local governments rather than on the factors that determine it. The financial condition is a reflection of the government's financial solvency (or ability to meet its long-term obligations) using four dimensions of solvency—cash, budget, long run, and service. As can be seen in Table 2.3, there are 11 indicators of solvency, a few of which overlap with Brown's (1993) 10-point test.

How useful are these measures at predicting fiscal stress? McDonald (2017) estimated the utility of applying the two approaches in U.S. jurisdictions plus ratio analysis studies in predicting whether a municipal bankruptcy occurred (see Table 2.3).<sup>7</sup> Using data for 150 standardized cities in the United States from 1977 to 2012 compiled by the Lincoln Institute of Land Policy, his main finding was that none of these ways of measuring fiscal health is sufficient to predict fiscal distress (where local governments cannot meet their expenditure obligations). Moreover, he concluded that measurement systems that rely on a series of variables to describe municipal financial condition are more meaningful in determining if there will be a bankruptcy than systems that rely on a single index that has been compiled from a number of indicators. The reason is that when data are compiled in this way, a lot of information is lost. This finding is important in establishing the basis for the measures of fiscal health in Chapter 3.

### Credit Ratings

Credit rating agencies use fiscal indicators to rate local governments for borrowing purposes. The ratings are important because they determine the amount of interest cities must pay on their debts. A high bond rating,

7 Ratio analysis examines the financial relationship between different variables to identify trends in the financial position.

for example, means that the bonds have a lower interest rate but are still marketable. A low bond rating will require a higher interest rate to attract investors. Variables are selected to determine the probability that a local government will meet its debt repayment schedule. Credit ratings require a comprehensive approach, including both fiscal management and economic information.

Ratings are based on an analysis of five factors that impact municipal finance: the economy, the issuer's finances, debt, governance and management strategies, and the structural features of the bond (Weickart, 2012). Moody's (2013), for example, analyzes four key rating factors and assigns different weights to each: economic fundamentals, institutional framework, financial performance and debt profile, and governance and management. Standard and Poor (2010) undertake quantitative and qualitative analyses of eight factors: institutional framework, economy, financial management, budgetary flexibility, budgetary performance, liquidity, debt burden, and contingent liabilities. In their analysis, they first assess the institutional framework of the city and then take a weighted average of the other seven factors to establish the credit profile.

As Hanniman (2015) correctly notes, market conceptions of fiscal health matter because they can influence risk premiums, credit ratings, and other constraints on local fiscal decisions and priorities. Yet, as he also notes, credit rating agencies define fiscal health differently than governments or citizens because the market only focuses on the short term. It is not interested in the financial sustainability of cities. Moreover, it puts a high priority on debt repayment and is not interested, for example, in the quality of the services being delivered by the local government or the state of the infrastructure. For this reason, credit ratings are not sufficient for understanding municipal fiscal health.

### **Fiscal Distress**

Fiscal distress is defined as an imbalance between the level of resources a unit of government has committed and potential available revenue (Citizens Research Council of Michigan, 2000). Fiscal distress can lead to fiscal crisis when a local government cannot pay its bills or provide existing levels of service so that basic operations are jeopardized (Honadle, 2003). Other points of reference include whether the public's needs are being met, whether residents can obtain a reasonable level of service at a reasonable level of taxes and user fees, and what the balance of commitments and

resources looks like in terms of long-term revenue and expenditure trends (Advisory Commission on Intergovernmental Relations, 1973; Bradbury, 1982; Kloha, Weissart, and Kleine, 2005).

One way to measure fiscal distress is to focus on deficits. One might simply measure the extent to which a municipality can cover public expenditures out of its current revenues by, for example, reducing its dependence on transfers or borrowing. A slightly more complicated approach would be to say that a local government is in crisis—and hence, presumably fiscally unhealthy—when its potential to raise revenues is insufficient to cover expenditures on services that it is legally required to carry out—usually by higher levels of government (Inman, 1995).

The signs of a fiscal crisis can be revealed in a series of indicators that include structural, economic, demographic, and institutional factors (Taylor 2009). Some indicators might include, for example, erosion of the economic base, declining population, declining tax base, or a decline in productivity. Internal factors (such as management and political factors) can also affect whether a municipality will be in fiscal distress.

In the United States, 22 states have devised strategies to detect fiscal distress in local governments. Financial information is actively monitored for general purposes in local governments to assess their fiscal condition and detect any problems. Efforts vary considerably in terms of scope, frequency, who does the monitoring, as well as the ways in which state governments deal with fiscal stress (Pew Charitable Trusts, 2016). Measures of fiscal distress also vary across states. The most often cited indicators are listed in Table 2.4. These measures range from expenditure and revenue information to information about debt to financial measures such as cash position and assets and liabilities. Interestingly, they also include measures that reflect the behavior of the local government in terms of the timeliness of submission of municipal audits.

TABLE 2.4. MOST COMMONLY USED MEASURES OF MUNICIPAL FISCAL DISTRESS BY U.S. STATES

- Submitting audits or financial statements on time
  - Deficit or minimum fund balance
- Debt service payments or debt service per capita or relative to operating revenue
  - Sufficient cash for services
  - Total revenue and/or expenditures per capita
- Unrestricted fund balance level/unassigned fund balance
  - Cash to liabilities ratio
- Inter-fund transfers to supplement the general fund
- General obligation debt/revenue or total debt per capita
- Whether the local government files a municipal debt readjustment plan pursuant to the bankruptcy code
  - Pension plan funding ratios

Source: Pew Charitable Trusts (2016).

Table 2.5 shows the financial indicators used by two U.S. states—New York and Florida—to evaluate whether their cities are going to experience fiscal distress. New York State uses a fiscal stress monitoring system to identify local governments that are facing major budget pressures. The State Comptroller reviews financial data to look for rising costs, decreasing cash, increased reliance on one-time revenues, declining fund balances, and issuance of large amounts of short-term debt (Pew Charitable Trusts, 2016). As shown in Table 2.5, there are nine financial indicators under five categories. In addition to the financial indicators over which cities have some control, there are eight environmental indicators which reflect exogenous factors to which cities can only respond but cannot change on their own. All of these factors—financial and environmental—have an impact on fiscal health.

Florida uses 18 indicators to assess concerning trends. Interestingly, it includes a measure of the state of infrastructure as a financial indicator. Accumulated depreciation relative to capital assets provides information on the extent to which assets have depreciated. An increasing trend in this ratio suggests that a city that is not systematically investing in its capital assets may end up increasing deferred replacement or maintenance costs down the road. This is an important indicator of how well a municipality is doing, but there is rarely sufficient information to be able to measure it.

TABLE 2.5. MEASURES TO DETERMINE FISCAL STRESS IN NEW YORK AND FLORIDA

NEW YORK STATE FISCAL STRESS MONITORING SYSTEM	FLORIDA FINANCIAL INDICATORS
<p><b>Financial indicators:</b></p> <ul style="list-style-type: none"> <li>• Year-end fund balance (assigned and unassigned fund balance, total fund balance) <ul style="list-style-type: none"> <li>• Operating deficits</li> </ul> </li> <li>• Cash position (cash ratio, cash percentage of monthly expenditures)</li> <li>• Use of short-term debt (short term debt issuance, short term debt issuance trend) <ul style="list-style-type: none"> <li>• Fixed costs (personal services and employee benefits as percentage of revenues, debt service as percentage of revenues)</li> </ul> </li> </ul> <p><b>Environmental indicators:</b></p> <ul style="list-style-type: none"> <li>• Population <ul style="list-style-type: none"> <li>• Age</li> <li>• Poverty</li> </ul> </li> <li>• Property value</li> <li>• Employment base</li> <li>• Intergovernmental revenues <ul style="list-style-type: none"> <li>• Constitutional tax limit</li> <li>• Sales tax receipts</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Changes in net position/beginning net position <ul style="list-style-type: none"> <li>• Unassigned and assigned fund balance plus unrestricted net position (constant dollars)</li> <li>• Unassigned and assigned fund balance/total expenditures <ul style="list-style-type: none"> <li>• Cash and investments/current liabilities</li> </ul> </li> <li>• Cash and investments/total expenditures or total operating expenditures/total revenues <ul style="list-style-type: none"> <li>• Current liabilities/total revenues or operating revenues</li> <li>• Long term debt (constant dollars)/population</li> </ul> </li> </ul> </li> <li>• Excess of revenues over expenditures/total revenues <ul style="list-style-type: none"> <li>• Operating income/total operating revenues</li> </ul> </li> <li>• Intergovernmental revenues/total revenues or total operating revenues <ul style="list-style-type: none"> <li>• Unassigned and assigned fund balances or unrestricted net position/total revenues or total operating revenues</li> <li>• Total revenues (constant dollars)/population <ul style="list-style-type: none"> <li>• Debt service/total expenditures</li> </ul> </li> </ul> </li> <li>• Total expenditures (constant dollars)/population <ul style="list-style-type: none"> <li>• Accumulated depreciation/capital assets <ul style="list-style-type: none"> <li>• Pension plan ratio</li> <li>• OPEB funded ratio</li> </ul> </li> <li>• Millage rate (i.e., tax rate)</li> </ul> </li> </ul>

Source: Author's elaboration.

## Equalization Transfers - Measuring the Fiscal Gap

Fiscal health in the context of the design of equalization transfers is the balance between the revenue-raising capacity of a city and the amount it must spend to provide public services of standard or average quality (expenditure need). The objective of this approach is to determine a city's underlying or structural ability to deliver public services to its residents independent of the budgetary decisions made by local government officials.<sup>8</sup> One of the key differences in this measure of fiscal health, compared to all of the others, is the emphasis on indicators that are beyond the control of local governments (such as population or tax base growth). Unlike measures of the financial condition of a local government that reflect, at least in part, how well the city has been managed in terms of the revenues it collects and the expenditures it makes, this measure is concerned with their ability to raise revenues (potential revenues and not what they have actually raised) and their need to make expenditures (not their actual expenditures). The reason for this approach is to avoid creating perverse incentives and strategic behaviors, to ensure that local governments are unable to influence the amount of transfers they receive through changes in their expenditure or revenue policies.

Revenue-raising capacity measures the impact of broad economic, social, and fiscal trends on the city's ability to raise revenue. Expenditure need is measured by the impact of the same trends on the amount the city must spend to provide public services of average quality when compared to other cities. Once the revenue-raising capacity and the expenditure need of a municipality are determined, it is possible to calculate the city's fiscal health or fiscal gap, or the difference between expenditure need and revenue-raising capacity.

An index can be created to reveal the net effect of a city's economic, social, and demographic characteristics on its ability to deliver services. A positive fiscal health index, in which revenue-raising capacity is greater than expenditure need, indicates the percentage of its revenue a city would have left over for increases in service quality or for tax cuts after it had provided a baseline service quality at the standard tax burden. A negative fiscal health index indicates the percentage increase in revenue the city would have to receive from outside sources, such as other governments, to provide a baseline service quality at the standard tax burden.

<sup>8</sup> Ladd and Yinger (1989) use this approach to measure fiscal health. They compare actual fiscal health to a standardized measure of fiscal health.

## Determining Measures of Municipal Fiscal Health

As the discussion so far has made clear, municipal fiscal health can be measured in a variety of ways and there are different reasons for measuring it (Bird, 2015). One measure that is rarely used, however, is the state of municipal infrastructure.<sup>9</sup> A municipality may appear to be in good fiscal health, based on its expenditures, revenues, and debt profile, but if its infrastructure needs major repair, its fiscal health may not be as strong as these other indicators might suggest. To get a true picture of fiscal sustainability, it is recommended that some measure of the state of the infrastructure is included. Unfortunately, as will be seen in the Latin American case studies, the information needed to measure the state of the infrastructure is largely unavailable.

Different approaches to measuring fiscal health require different types of data from different sources. For example, fiscal distress is often measured by the amount of short-term debt: Can the city cover its expenditures on a daily basis? Measures used to determine fiscal distress are generally taken from the data on internal transactions in the city's annual financial reports, municipal audits, and information statements. This information helps to detect patterns of excessive internal inter-fund borrowing or increased reliance on short-term external borrowing (Chernick, 2017). It is particularly helpful to analyze this type of data over time to see if there is a pattern of problems.

Fiscal gap measures, on the other hand, are based on a comparison of expenditure need and fiscal capacity over time across a range of cities. Measures of fiscal gap can point to particular cities that have relatively large gaps and serve as a guide to more detailed analysis of individual budgets, audits, etc. to understand if a city is in fiscal distress. As Chernick (2017) notes, the budgetary approach is better suited to analyzing the fiscal health of individual cities.

Although there are many measures to determine fiscal health, some authors have argued that more than one approach should be used. For example, Chernick (2017) argues that the fiscal gap approach should be viewed as complementary to measures based on financial condition and fiscal distress (e.g., budgetary and debt-related measures of fiscal health). Only by combining approaches can a city's fiscal health be understood.

9 The state of Florida includes one measure to reflect the state of infrastructure.

This conclusion, similar to the one raised above by McDonald (2017), informs the approach set out in Chapter 3, which integrates different types of measures of municipal fiscal health.

# Methodologies for Estimating Fiscal Health

The discussion so far has focused on describing different possible measures of fiscal health. This section turns to the methodologies for how to use these measures to estimate municipal fiscal health. The approaches to measuring fiscal health based on financial position and fiscal distress are similar to each other and are presented below. As described below, the methodology for measuring fiscal health based on fiscal gap measures is quite different.<sup>10</sup>

## Financial Position and Fiscal Stress

Four general methodological approaches have been used to measure municipal financial position (Jacob and Hendrick, 2012): trend analysis, group norms, benchmarking, and multiple indices. Trend analysis considers the trends of different fiscal indicators. Sohl et al. (2009), for example, used 29 indicators to measure the comparative financial position based on the Financial Trend Monitoring System (FTMS) of the International City/County Management Association (ICMA) in the United States.<sup>11</sup> The advantage of trend analysis is that it examines the indicators over time, usually a five-year period, so that problems can be identified before they become too serious. The disadvantage of this system is that it requires a

<sup>10</sup> This paper does not consider the methodology used by rating agencies, since they are used solely to determine if a city can repay its loans. It is assumed the cities are interested in more than this aspect of fiscal health.

<sup>11</sup> The indicators included estimated population, government full-time equivalent employees, general fund revenues, general fund expenditures, five-year growth rate, square miles, median household income, total revenues, total expenditures, median home value, Fortune 500 headquarters in city limits, bond rating, unemployment rate, education (percentage of people with a bachelor's degree or higher), property crime scores, number of hospital beds, union versus non-union workers, poverty, presence of a four-year college in city limits, median age, airport with daily service, form of government, top industry score, and geography (Groves, Nollenberger, and Valente, 2003).

lot of information, which makes it difficult to use to assess the financial condition of hundreds of municipalities. The other problem with this approach is that it describes only the trend in fiscal indicators and not where a municipality should be. For example, a municipality in poor fiscal condition that is improving would look the same as a municipality in better financial condition with improving trends. For this reason, many analysts use group comparisons or use some form of benchmarking to determine how well a city is doing.

The group norms approach measures a small number of factors against group norms. The reference group may be all local governments in the state and “normal” may be defined as the mean or median of that group. The problem with this approach is that the group average may not be a good barometer for measuring financial condition, because an entire region may be fiscally distressed. If so, a municipality may look good relative to the group average, but may still be in poor fiscal condition. Moreover, group averages often include cities at various stages of development. Thus, averaging the information from a variety of cities may not provide a good measure for individual cities. Lastly, estimating relative measures requires that indicators be determined for all cities in the group to be able to come up with a target for each indicator, and that much information may not be available (García-Sánchez et al., 2012).

Brown (1993) devised a 10-point test in conjunction with the Government Finance Officers Association (GFOA) in the United States as a tool to measure fiscal health that is meant to be easy to use and understand. Each of the so-called points captures one of five dimensions of financial position, summarized in Table 2.3. Each ratio is calculated for the local government and a group of other local governments of similar size. Brown (1993) used financial data from more than 700 U.S. municipalities.<sup>12</sup> Ratios are then placed in quartiles to see where the municipality falls relative to its peers (by population size group). Each quartile is given a score of -1 for the first quartile to “2” for the fourth quartile across all ratios. The resulting score of fiscal health can range between -10 and 20. The interpretation of the score is relative to the peer group. More recently, using the same indicators, Maher and Nollenberger (2009) extended Brown’s (1993) analysis to include more than one year. They did not provide a cumulative score based on rankings, as did Brown (1993), but rather left the data for each municipality to evaluate its position on each indicator. Unfortunately,

<sup>12</sup> Maher and Nollenberger (2009) suggest that the data do not reflect a true sample of municipalities, because only high performing municipalities likely submitted data.

for both studies, there is no evidence to support this methodology to calculate a score for each city (McDonald, 2017).

The benchmarking approach tries to get around the problem of group averages by benchmarking the financial condition of a municipality over time relative to an industry-wide standard such as those recommended by the GFOA. In Canada, the Province of Ontario sets out benchmarks for six key performance indicators for municipalities in the province (see Table 2.6). Not only does Table 2.6 show the standards for the various measures, it also includes two measures of the state of the infrastructure which are absent from most studies: the asset sustainability ratio and the asset consumption ratio. The former measures the extent to which a city is replacing, renewing, or acquiring new assets as existing infrastructure ages, while the latter is a proxy for the age of the assets.

TABLE 2.6. BENCHMARKS FOR KEY PERFORMANCE INDICATORS FOR MUNICIPALITIES IN ONTARIO, CANADA

INDICATOR	RATIONALE	CALCULATION	BENCHMARK OR TARGET
<b>OPERATING SURPLUS RATIO</b>	Indicator of extent to which revenues cover operating expenses only or are available for capital funding and other purposes. A negative ratio indicates the percentage of increase in rates revenue that would have been required to achieve a break-even result	$(\text{Operating revenue}/\text{operating expenses including interest and amortization} + \text{PSAB adjustments})/\text{total rates revenue, which includes property taxes, user fees, and service charges}$	<b>0 to 15 percent</b>
<b>CURRENT RATIO</b>	Approximate measure of a municipality's liquidity or its ability to cover short-term obligations	$\text{Current assets}/\text{current liabilities}$	<b><math>\geq 1:1</math></b>
<b>RATE COVERAGE RATIO</b>	Measure of municipality's ability to cover its costs through its own rates revenue efforts	$(\text{Property taxes} + \text{user fees} + \text{service charges})/\text{total operating expenses}$	<b><math>\geq 40</math> percent</b>
<b>DEBT SERVICE COVERAGE RATIO</b>	Measure of municipality's ability to service its debt payments	$(\text{Operating revenue}/\text{operating expenses} + \text{interest expense and amortization})/\text{principal and interest}$	<b><math>\geq 2</math></b>
<b>ASSET SUSTAINABILITY RATIO</b>	Approximation of extent to which a municipality is replacing, renewing, or acquiring new assets as its existing infrastructure is reaching the end of its useful life	$\text{Additions and betterments}/\text{annual amortization expense}$	<b><math>&gt; 90</math> percent</b>
<b>ASSET CONSUMPTION RATIO</b>	Measures age of physical assets, extent to which depreciable assets have been consumed by comparing the amount of the assets that have been used up and their cost	$\text{Closing amortization balance}/\text{closing cost balance}$	<b><math>&lt; 50</math> percent</b>

Source: Province of Ontario, Ministry of Municipal Affairs, Financial Information Returns, multi-year reports available at: <https://efis.fma.csc.gov.on.ca/fir/index.php/multi-year-reports/provincial-summary/>.

The problem with the benchmark approach is that there is no single widely accepted industry standard, so the choice of a benchmark tends to be arbitrary (Jacob and Hendrick, 2012). In Bird's (2015) view, benchmarking may not be the best way to diagnose fiscal distress. He argues that the initial conditions, process, and institutional structure of each city needs to be considered when interpreting fiscal indicators. It is also not at all clear that the standards applied in one country are relevant to cities in other countries. For example, the standards applied in North American jurisdictions would not necessarily be appropriate in LAC. Moreover, benchmarking cannot tell us what happened, why it happened, or how to fix it.

The fourth approach, which uses multiple indices, allows the analyst to develop scores for factors that reflect a municipality's fiscal condition. One example of a scoring system is provided by Kloha, Weissart, and Kleine (2005) who use four steps to measure the fiscal condition of cities in the State of Michigan:

- Collect data on a specific variable (such as assessment growth)
- Set a standard for each variable to distinguish between best and worst performance (i.e., use benchmarks)
- Assign a local government a score of 0 if performance is “good” and 1 if it is “poor”
- Add the scores together for each city

The more points a city receives, the worse it is performing. The problem with this method is that each variable is given equal weight, even though some variables contribute more to the fiscal condition of municipalities than others. It is difficult to aggregate heterogeneous indicators and, as in the Kloha, Weissart, and Kleine (2005) study, arbitrary weightings are usually used to come up with one measure of fiscal health.

Other studies simply rank each municipality on a series of indicators, add the rankings together, and divide by the number of rankings. As with the Kloha, Weissart, and Kleine (2005) approach, this method implicitly assumes that each variable is equally important and is given the same weight. The overall ranking determines which municipalities have poor fiscal health.

## Measures of Fiscal Gap

As noted earlier, fiscal gap is a measure of the difference between the revenue-raising capacity of a local government and its expenditure needs. To quantify the fiscal gap, a methodology was originally developed by Ladd and Yinger (1989) for U.S. cities and expanded by Chernick and Reschovsky (2006), Slack, Tassonyi, and Grad (2015), and Chernick (2017). This methodology requires estimating expenditure need and comparing it to the revenue-raising capacity for each city.

Expenditure need is defined as the cost to local governments of providing a standardized bundle of services. The expenditure need (EN) of municipality  $i$  can be written as:

$$EN_i = \sum_j Q_j S_{ij} C_{ij}$$

where  $Q_j$  is standard per capita spending on the  $j^{\text{th}}$  expenditure function,  $S_{ij}$  is the  $i^{\text{th}}$  municipality's index of service responsibility for the  $j^{\text{th}}$  spending category relative to the average of all cities, and  $C_{ij}$  is the  $i^{\text{th}}$  index of per-capita costs for the  $j^{\text{th}}$  spending category relative to the average of all cities. In most applications,  $Q_j$  is measured by average per-capita spending on the designated function.

Costs per service may vary with topography, climate, and population density, for example. The characteristics of the population (e.g., incidence of poverty, proportion of single-parent families etc.) will also affect costs. Older cities may also experience higher costs, particularly the costs of maintaining and replacing existing infrastructure. As Chernick (2017) notes, the empirical challenge in analyzing expenditure need is separating the demand factors (fiscal base of the city and the willingness of citizens and firms to tax themselves) from the environmental factors which are largely beyond the control of city officials (e.g., poverty rate, percentage of elderly, etc.).

Implementing this approach requires estimating a regression equation for each local government's total per-capita expenditures. The equation specifies per-capita expenditures as a function of demand variables, such as the income or wealth of city residents and cost factors or control variables that reflect characteristics of the city that are beyond the control

of local officials.<sup>13</sup> In his analysis of 150 cities in the United States, Chernick (2017) estimates expenditure per capita as a function of population, change in population, population density plus intergovernmental transfers, and median income. Slack, Tassonyi, and Grad (2015) estimated expenditures for 30 municipalities in Ontario, Canada as a function of population, real income per capita, the dependency ratio, and real property assessment per capita. The estimated coefficients from the regression equation can be used to predict or simulate what the level of per-capita spending would have been in each municipality if it had average values for the demand variables but its own values for the cost factors. Predicted spending from this model serves as a proxy for expenditure need.

Turning to the revenue side, the next step is to calculate a measure of revenue-raising capacity using the tax base approach, which gives a measure of the amount of revenue each city could raise if it levied average tax rates. The total revenue-raising capacity ( $RRC_i$ ) is defined as:

$$RRC_i = \sum_j t_j BASE_{ij}$$

where  $t_j$  is the average tax rate and  $BASE_{ij}$  is municipality  $i$ 's tax base for tax  $j$ . To derive the revenue-raising capacity measure for each, the total amount of taxes collected in each municipality is divided by the total tax base to derive the effective tax rate and then the effective tax rate is multiplied by the tax base. Revenue-raising capacity for the property tax, for example, in any given city would be the size of its tax base multiplied by the average tax rate for the comparator cities. This calculation gives the maximum amount of revenue each city could raise if it imposed the average tax rate on the property tax base. The same calculation is made for other taxes, and these are added together to come up with a measure of local fiscal capacity.<sup>14</sup> To this sum, Chernick (2017) also adds local fee charges.<sup>15</sup> Once the revenue-raising capacity and the expenditure need of each municipality are estimated, the next step is to calculate the city's fiscal gap by examining the difference between the two.

<sup>13</sup> Expenditure equations may also include preference variables that account for the preferences of local voters for public services.

<sup>14</sup> For other taxes, Chernick (2017) calculates standardized or average tax rates as non-property taxes divided by median income.

<sup>15</sup> Since it is difficult to determine the capacity to raise user fees, as opposed to calculating the actual user fees, Chernick (2017) simply adds the actual revenues. He does, however, suggest that future work should take account of the influence of factors such as poverty, percentage elderly, population density etc. on the ability to charge user fees.

Chapter

# 03

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BY  
ENID SLACK

## AN INTEGRATED APPROACH TO MEASURING MUNICIPAL FISCAL HEALTH IN LATIN AMERICAN AND THE CARIBBEAN

MUNICIPAL FISCAL  
HEALTH IN  
LATIN AMERICA



The review of the many studies of fiscal health of cities does not provide a definite answer about the best way to measure municipal fiscal health. A variety of measures and methods have been used in different jurisdictions at different times for different purposes to assess financial condition, assign a credit rating, determine if a city is in distress, or calculate the amount of intergovernmental transfers that a city should receive.

The review of the literature in Chapter 1 suggests that measuring a city's fiscal health may require a more integrated approach that combines different types of measures and approaches to produce a more complete picture of fiscal health. An integrated approach would need to do the following:

- **First**, it should provide both a short-term and a long-term perspective. In the short term, for example, attention should be paid to on whether the local government is balancing its operating budget and meeting its payroll. In the long term, the focus is on whether the local government can afford to maintain existing infrastructure and build new infrastructure and whether it can meet its pension obligations. By combining such a short and long-term perspective, the analysis will be able to look at both fiscal health and fiscal sustainability.
  - **Second**, it should consider factors that are beyond the control of the local government as well as factors within its control. Factors that are beyond the control of the local government include, for example, population growth and tax base growth, both of which can have an important impact on the fiscal health of the local government. External factors might also include the control of higher levels of government over maximum or minimum local tax rates. Factors within a local government's control relate to financial management and include how much it invests in infrastructure and how much debt it incurs. By combining external and internal factors, a local government can prepare for external shocks and see where it needs to improve financial management.
  - **Third**, it should include budgetary measures such as how much it is spending on services and financial obligations and the sources of municipal revenue as well as financial measures, including the amount of debt it has incurred and the relationship between financial assets and liabilities. The combination of budgetary and financial indicators would give a more holistic picture of fiscal health now and in the future.
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# Considerations in the Latin American and Caribbean Context

There are common factors related to the economies, populations, and institutional frameworks underlying intergovernmental fiscal relations of countries and territories in LAC that shape subnational fiscal performance which should be considered in any analysis of the fiscal health of municipalities. A first set of factors lie beyond the control of municipal governments, such as the size, diversity, and growth of the tax bases. These factors largely determine the ability to raise revenues, as well as the profile of the population and the growth trajectories, which signal service pressures and expenditure needs. In a sense, they define fiscal disparities at the local level and are important in understanding the differences among municipalities in the state and prospects of their fiscal health.

Moreover, key features of fiscal decentralization frameworks and intergovernmental fiscal relationships in LAC greatly influence the fiscal behavior and performance of municipalities. These include the large vertical imbalances that originate in the weak correspondence between assigned expenditure functions and revenue sources. These fiscal arrangements create incentives and disincentives for revenue mobilization (i.e., low fiscal effort and transfer dependence), the use of resources (inefficient and opaque spending), and fiscal discipline (imprudent borrowing and opaque financial management). The local capacities to exploit revenue sources and manage expenditures and debt reinforce the problems associated with the vertical imbalances and are fundamental to understanding the fiscal health of municipalities in the region.

Finally, the fiscal responsibility frameworks that have been increasingly implemented in LAC countries, with some fiscal rules seeking balanced budgets and stricter debt controls, generate procyclical fiscal policy choices at the municipal level. These choices reduce investments in infrastructure, adversely affecting the maintenance and expansion of urban basic services.

# Methodology of Assessing Municipal Fiscal Health

Academics and governments have tried to quantitatively measure the fiscal health of a city. It is difficult, and probably not a good idea, to summarize the state of a city's fiscal health in a single measure or index. Such an approach makes assumptions about which indicators are the most important. The result is an arbitrary weighting of the indicators with generally no evidence to substantiate the weights used. If each indicator is given equal weight, there is an underlying assumption that they are equally important. For that reason, some authors have suggested that, rather than combining measures of fiscal health into one composite score, it is more important to look at how a city is doing on each specific indicator (Bird, 2015).

Another issue is how to determine whether a fiscal indicator suggests the city is fiscally healthy or not. One possibility is to apply a set standard or benchmark for each indicator. Where they have been used, however, the choice of standard or benchmark seems arbitrary, and it is not clear that they are transferrable to other locations. Another way to determine fiscal health is to compare fiscal indicators against an average for all cities in a state. This method is also problematic because the group average may not be a good gauge for measuring fiscal health, especially when an entire region is fiscally distressed. For this reason, it might be preferable to compare a city's fiscal health with that of similar cities. The difficulty then lies in how to determine which cities are comparable.

## Measuring Fiscal Health in Cities in Latin America and the Caribbean

Based on the literature review and the context of fiscal decentralization in the region, this section lays out an integrated approach to measuring fiscal health in cities in LAC, which considers both the financial obligations and the expenditure requirements of local governments. Decentralization reforms in most LAC countries are aimed at improving the efficiency of service and the accountability associated with financing it with own-source

revenues. The integrated approach also selects indicators that consider all aspects of fiscal health—long and short term, external and internal measures, and budgetary as well as financial measures (from each of the categories set out in Table 3.1).

The integrated approach also focuses on the distinctive characteristics of subnational public finance described above. It selects indicators, as they become available, that capture the vertical fiscal imbalance and the size of the transfer dependence, fiscal disparities arising from differences in economic and population bases, as well as indicators that determine access to services and infrastructure, local technical and administrative capacities, and behaviors that affect spending and debt decisions and management.

To this end, Table 3.2 lists 10 fiscal indicators that are used in the case studies of selected cities in the LAC region (Chapters 4 through 7). The first part of the table shows five indicators to be used to provide a profile of each city. These indicators are used to understand the operational context of each local government. As will be explained below, the profile measures are also designed so that each city can determine which other cities to use for comparison purposes. Population allows cities to compare themselves with cities of similar size and presumably a similar need to make expenditures. Income per capita provides comparisons of cities with similar wealth and the unemployment rate allows for the comparison of cities with similar economic circumstances. Expenditures per capita give an indication of the level of municipal responsibility, and taxes per capita show the reliance on taxes to pay for services.

The second part of the table suggests 10 fiscal indicators to measure fiscal health. There are two indicators in each of the five main categories—external measures, financial measures, tax and revenue measures, debt measures, and infrastructure measures. Expenditure measures have been included in the profile rather than as fiscal indicators.<sup>16</sup> Table 3.2 also describes how to calculate the indicators, the rationale for including them, and potential data sources. These indicators were selected from the larger list of indicators, in part because they will likely be the easiest to find in municipal financial statements in LAC municipalities but also because they reflect each of the categories. Ten indicators were chosen because that number is large enough to provide a good picture of fiscal health and, at the same time, small enough for local governments to be able to collect the necessary data. Moreover, if information for one or two indicators is not available,

<sup>16</sup> Expenditure measures tend to be less reliable than other measures of fiscal health because they are unlikely to have legal documentation in the same way as measures of tax and debt do, for example.

it will still be possible to measure a city's fiscal health with the remaining indicators. For some of the case studies, proxy measures are used where information on some indicators is not available. For example, for Brazil (Chapter 4), information was not available on the asset consumption ratio or the extent of investment in capital assets (closing cost balance/closing net book value). As proxies, indicators related to capital expenditure and other infrastructure measures were used.

To assess the fiscal health of a city, many studies have combined a series of indicators into one index. As noted above, this methodology can be problematic. Some indicators are simply more important than others but, when they are combined, it is not possible to determine which indicator is driving the results. Moreover, the weights applied to each indicator are either equal—which is usually not the case in reality—or arbitrary. For that reason, it is proposed that each indicator be assessed on its own merit so the local government can see where its problems lie.

In addition, the methodology proposed here compares each indicator to indicators in some 20 cities with a similar population and which are comparable in terms of population, income, unemployment, per capita expenditures, and per capita revenues. A restricted sample of cities is chosen to minimize the possibility that only cities that are expected to be in poorer fiscal health will be included in the comparison. It is understood, however, that in some cases it may not be possible to find 20 comparable cities. For example, in the case of a megacity, there are few countries where there will be 20 comparable megacities. In such a case, a smaller number of comparable cities may need to be chosen.

It is important for local governments to assess their fiscal health annually, based on the fiscal indicators laid out here, to be able to get a picture of trends in fiscal health and to determine if changes over time occurred. While information may be outdated in many cases, it is useful to look at the most recent information available each year.

TABLE 3.1. MEASURES OF FISCAL HEALTH

MEASURE OF FISCAL HEALTH	DEFINITION	RATIONALE
<b>(1) EXTERNAL MEASURES</b>		
POPULATION	Population	Provides an indication of the need for services
POPULATION GROWTH	Average growth in population over last two years	Suggests whether a municipality is growing and its ability to pay for services
INCOME PER CAPITA	Income/population	Measures the wealth of the community and its ability to raise taxes
POVERTY RATE	Percentage of the population below the poverty line	Measures the need for municipal services
DEPENDENCY RATIO	Population less than 19 plus population greater than 65/Total population	
UNEMPLOYMENT RATE	Number of unemployed persons/Number of persons in the labor force	
TAX BASE GROWTH	Average growth of tax base over last two years	Suggests ability to pay for services in the future.
<b>(2) FINANCIAL MEASURES</b>		
OPERATING DEFICIT	Operating expenditures/operating revenues	Indicator of extent to which revenues cover operational expenses only or are available for capital funding or other purposes.
YEAR END FUND BALANCE	Assigned and unassigned fund balance	Indicator on whether city will be able to maintain stable taxes and an adequate level of service
CASH POSITION	(Cash + cash equivalents + investments)/current liabilities	Indicator of whether the city has sufficient cash to meet current needs
NET FINANCIAL ASSETS	Financial assets/financial liabilities	Measure of a city's liquidity or ability to pay short-term obligations

<b>(3) EXPENDITURE MEASURES</b>		
<b>EXPENDITURES PER CAPITA</b>	Expenditures/population	Provides information on what municipality is spending
<b>EXPENDITURES AS A PERCENTAGE OF TAXABLE VALUE</b>	Total municipal operating expenditures/size of the tax base	Indicates whether a municipality has a large budget (expenditures) relative to its ability to raise revenues
<b>(4) TAX AND REVENUE MEASURES</b>		
<b>TAX BASE PER CAPITA</b>	Size of the tax base/population	Measures the ability to raise taxes
<b>RESIDENTIAL SHARE OF TOTAL TAX BASE</b>	Residential tax base/total tax base	Gives an indication of the ability to raise property taxes. Ability will be harder if a large share of the tax base is residential
<b>TAXES PER CAPITA</b>	Taxes/population	Provides information on tax revenues
<b>EFFECTIVE TAX RATE</b>	Taxes/size of the tax base	Indicator of pressure on the tax base
<b>TAXES RECEIVABLE AS A PERCENTAGE OF TAXES LEVIED</b>	Taxes receivable/Taxes levied	Increasing levels of taxes in arrears indicate cash-flow problems for both a municipality and its ratepayers. This measure may also reveal a weakened tax base
<b>DEPENDENCE ON TRANSFERS (TRANSFERS RELATIVE TO TOTAL REVENUES)</b>	Intergovernmental transfers	Measures the need for municipal services
<b>(5) DEBT MEASURES</b>		
<b>DEBT BURDEN PER CAPITA</b>	Size of debt/population	Measures a municipality's flexibility to meet expenditure requirements in the future
<b>DEBT TO TAX RATIO</b>	Size of debt/tax revenues	Standard measure of a government's fiscal sustainability. Measures the ability of the municipality to pay back the debt with tax revenues

<b>DEBT CHARGES RELATIVE TO OWN-SOURCE REVENUES (REVENUES EXCLUDING TRANSFERS)</b>	Debt charges (principal plus interest)/ (Municipal revenues - transfers)	Indicates the extent to which municipalities are able to repay debt from taxes and other own-source revenues
<b>RESERVES PER CAPITA</b>	Size of reserves/population	Gives an indication of available funds for contingencies
<b>(6) INFRASTRUCTURE MEASURES</b>		
<b>TOTAL CAPITAL ASSETS (TCA) PER CAPITA</b>	Closing cost balance of TCA/population	Measures infrastructure intensity and, to some extent, determines the levels of service a city offers
<b>TCA PER HOUSEHOLD</b>	Closing cost balance of TCA	
<b>ASSET CONSUMPTION RATIO (PERCENTAGE OF TCA AMORTIZED)</b>	Closing amortization balance/closing cost balance minus land	Measure of infrastructure needs and urgency by estimating the age of a city's physical assets and how many of its assets need to be repaired or replaced. For example, if 40 percent of municipal TCA (excluding land) has been amortized, the average remaining life of the assets is only 60 percent of the average expected useful life. If a city is maintaining its assets, the asset consumption ratio will be low. Land is excluded because it is not amortized
<b>EXTENT OF INVESTMENT IN CAPITAL ASSETS</b>	Closing cost balance/closing net book value	Provides an indication of the extent to which cities have been investing in capital assets by comparing the original cost of the capital assets (closing cost balance) with the original cost less accumulated depreciation (net book value). To preserve the value of its assets, a city would have to invest at least the amount of depreciation each year. A closing net book value that is equal to the closing cost balance (100 percent) would mean the city is preserving the full value of its assets by investing in maintenance and repairs

<b>CAPITAL EXPENDITURE PER CAPITA</b>	Capital expenditure/population	Indicates the amount being spent each year on infrastructure
<b>CAPITAL EXPENDITURE PER HOUSEHOLD (FIVE-YEAR AVERAGE)</b>	Five-year average of above ratio	Capital expenditures tend to be lumpy, so a five-year average provides a better measure of municipal investment in infrastructure
<b>RATIO OF CAPITAL EXPENDITURE TO OPERATING EXPENDITURE</b>	Capital expenditures/operating expenditures	Indicator of the continuity of a municipality's approach to capital investment. While operating expenditures per capita exhibit stability, there is considerable year-to-year variation in capital expenditures per capita. This ratio can be impacted by the city's growth profile, asset management planning, long-term financial strategies, and short-term financial management

Source: Authors' elaboration.

TABLE 3.2. FISCAL INDICATORS TO MEASURE FISCAL HEALTH IN LAC CITIES

MEASURE	DEFINITION	RATIONALE	CATEGORY	DATA SOURCE
<b>(1) CITY PROFILE</b>				
<b>POPULATION</b>	Population	Allows cities to compare themselves to cities of similar size	Profile	Census
<b>INCOME PER CAPITA</b>	Income/ population	Allows cities to compare themselves to cities of similar wealth	Profile	National tax data
<b>UNEMPLOYMENT RATE</b>	Number of unemployed persons/size of workforce	Allows cities to compare themselves to cities with similar economic conditions	Profile	Labor force surveys
<b>EXPENDITURES PER CAPITA</b>	Expenditures/ population	Allows cities to compare themselves to cities with similar expenditure responsibilities	Profile	Municipal budget or financial statements
<b>TAXES PER CAPITA</b>	Taxes/ population	Allows cities to compare themselves to cities with similar taxes	Profile	Municipal budget or financial statements
<b>(2) FISCAL INDICATORS</b>				
<b>POPULATION GROWTH</b>	Average growth of population over last two years	Suggests whether a city is growing and its ability to pay for services	External	Census
<b>TAX BASE GROWTH</b>	Average growth of tax base over last two years	Suggests ability to pay for services and meet financial obligations in the future	External	Tax information
<b>OPERATING DEFICIT</b>	Operating expenditures-operating revenues	Indicator of extent to which revenues cover operational expenses only or are available for capital funding or other purposes	Financial	Statement of change in financial assets

<b>NET FINANCIAL ASSETS</b>	Financial assets/ financial liabilities	Measure of a city's liquidity or ability to pay short-term obligations. Financial liabilities include, for example, temporary loans, accounts payable, deferred revenue, long-term liabilities, and post-employment benefits (accumulated sick leave, accrued vacation pay, accrued pensions payable)	Financial	Statement of financial position (balance sheet)
<b>OWN-SOURCE REVENUES RELATIVE TO TOTAL REVENUES</b>	Own-source revenues/total revenues	Reliance on own-source revenues (rather than transfers) reduces cities' vulnerability to a reduction in transfers that will have to be made up by an increase in own-source revenues or a reduction in expenditures	Tax and revenue	Statement of operating expenditures or statement of cash flows
<b>TAXES RECEIVABLE RELATIVE TO TAXES LEVIED</b>	Taxes receivable/ taxes levied	Increasing levels of tax arrears indicate cash-flow problems for a city and its ratepayers. This measure may also reveal a weakness in the tax base	Tax and revenue	Statement of financial position (balance sheet)
<b>DEBT-TO-TAX RATIO</b>	Size of debt/ tax revenues	Measures the ability of the city to pay back with tax revenues. Standard measure of a government's fiscal sustainability	Debt	Statement of change in financial assets
<b>DEBT CHARGES RELATIVE TO OWN-SOURCE REVENUES</b>	Debt charges (including principal plus interest)/ municipal revenues less transfers	Indicates the extent to which cities are able to repay debt from taxes and other own-source revenues	Debt	Statement of operating expenditures

<b>ASSET/ CONSUMPTION RATIO</b>	Closing amortization balance/ closing cost balance minus land	Measure of infrastructure needs and urgency by estimating the age of a city's physical assets and how much of its assets need to be repaired or replaced. For example, if 40 percent of municipal TCA (excluding land) has been amortized, the average remaining life of the assets is only 60 percent of the average expected useful life. If a city is maintaining its assets, the asset consumption ratio will be low. Land is excluded because it is not amortized	Infrastructure	Statement of financial position (balance sheet)
<b>EXTENT OF INVESTMENT IN CAPITAL ASSETS</b>	Closing cost balance/ closing net book value	Provides an indication of the extent to which cities have been investing in capital assets by comparing the original cost of the capital assets (closing cost balance) with the original cost less accumulated depreciation (net book value). To preserve the value of its assets, a city would have to invest at least the amount of depreciation each year. A closing net book value that is equal to the closing cost balance (100 percent) would mean the city is preserving the full value of its assets by investing in maintenance and repairs	Infrastructure	Statement of financial position (balance sheet)

Source: Authors' elaboration.

Chapter

# 04

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BY  
SOL GARSON

## BRAZIL

MUNICIPAL FISCAL  
HEALTH IN  
LATIN AMERICA



# Context

Brazil is a Federal Republic, encompassing a federal government, 26 states, a federal district (Brasília), and 5,568 municipalities, as of 2016. Its population of 206 million people is unevenly spread throughout the country, with around 85 percent living in urban areas. With a GDP per capita of US\$15,127,<sup>17</sup> Brazil is ranked among the countries with the highest level of income inequality. The country also suffers from huge regional economic imbalances. In 2014, around 42 percent of the population lived in the four states of the southeast region, where 55 percent of the total GDP was generated. In contrast, only 14 percent of GDP was produced in the northeast region, where 28 percent of the country's population lived.

Brazil's municipalities became full members of the federation in the 1988 Constitution. Current taxing powers and the responsibility for public services delivery and public policies legislation are defined in that same text. Most legislative responsibilities are allocated to the federal government. When concurrent responsibilities are assigned, as is the case of tax, budgetary, financial, economic, and urban legislation, the role of the Union is limited to setting general directives.

Some responsibilities for service delivery, such as national defense and the postal service, fall exclusively on the federal government. Others are shared among the three tiers of government, such as education, health, social assistance (except for the General Regime for Social Security, or RGPS<sup>18</sup>), and environmental protection. Federal laws, such as the 1990 Health Organic Law and the 1993 Organic Social Assistance Law, have established mechanisms and instruments for cooperative federalism.

Under Article 29 of the Constitution, municipalities are entitled to self-organization. Common and exclusive responsibilities (Constitution Article 30) are listed below, in Table 4.1. According to Article 211, municipalities should prioritize basic education (ages 6 to 14) and child education (ages 0 to 5).

<sup>17</sup> Country GDP: Purchasing power parity (PPP) current international US\$3.141 trillion  
<https://data.worldbank.org/indicator/NY.GDP.PCAP.PP.CD?locations=BR>

<sup>18</sup> The Brazilian Social Security System encompasses a system that cover workers under private sector legislation, the General Regime for Social Security (or RGPS), and the various systems that cover public servants hired under the civil service unified regime, called the Pension Regime for Government Workers (or RPPS).

TABLE 4.1. ADMINISTRATIVE RESPONSIBILITIES OF MUNICIPALITIES IN THE BRAZILIAN FEDERATION

ONLY LOCAL	<p>Local taxes institution and collection</p> <p>Organization/provision of local services, directly or through concession/permission, including collective transportation in inner city</p> <p>Land use legislation and inspection</p>
MAINLY LOCAL	<p>Preschool and basic education*</p>
COMMON COMPETENCES	<p>Protection of the Constitution</p> <p>Public health and social assistance to disabled people</p> <p>Protection of historical, artistic and cultural assets</p> <p>Protection of the environment</p> <p>Ensure access to culture, education and science</p> <p>Incentive to agriculture, cattle breeding and food distribution</p> <p>Access to housing, including house improvements and sanitation utilities</p> <p>Combating poverty and social marginalization</p> <p>Concessions for research and exploration of hydric and mineral resources, tourism and sports promotion</p> <p>Traffic safety education</p>

Source: Constituição da República Federativa do Brasil (1988).

\*Includes early childhood education in day care centers for 1 to 3 year-old children and preschool assistance for 4 to 5 year-old children.

The Constitution empowers local governments to grant concessions (i.e., contracts) for local service provision, such as public transportation and waste collection and disposal. Intermunicipal transportation is the responsibility of the states, and the federal government manages interstate and international transportation.

In terms of revenue, municipalities receive significant amounts in federal grants, mostly earmarked for health and education. Municipalities have been assigned a number of tax handles, the property tax and the ISS being the main ones. Municipal tax revenues increased as a share of GDP. By the end of the 1990s, municipal tax collection accounted for about 5 percent of the total tax burden, or about 30 percent of GDP. Twenty years later, it accounted for about 7 percent of the tax burden, and it currently sits

at around 32.5 percent of GDP. In 2016, the federal government collected approximately 65.4 percent of total tax, the states 27.1 percent, and the municipalities 7.5 percent. After revenue sharing, the percentages of revenues were 53.9 percent, 25.5 percent, and 20.6 percent, respectively.<sup>19</sup>

## Setting the Stage: Municipality Profiling

This study analyzes the fiscal performance of a set of 12 out of the 26 Brazilian state capital cities<sup>20</sup> between 2010 and 2016, assessing their fiscal health and examining its determinants. The cities in the sample are spread throughout Brazil and its geographic regions.<sup>21</sup> In 2015, they represented around 82 percent of the population of the 26 capital cities, 89 percent of their tax revenue, and approximately 78 percent of their current intergovernmental grants. With respect to all Brazilian municipalities, the selected group accounts for around 17 percent of the population, 44 percent of total tax revenue, and 15 percent of current intergovernmental grants.<sup>22</sup>

### Demography and Territory

Demographic and territorial characteristics can impact the fiscal situation of municipalities, particularly the core cities of large metropolitan areas, as is the case of the 12 capitals in this study. Population growth leads to higher demand for public services, especially when the new population consists primarily of people with low income and low educational attainment who live in areas with poor urban infrastructure, in the city itself or on its periphery, as it has been the case of metropolitan Brazil in the last three decades (Garson, 2009). Substantial amounts of resources are required, not only to cover the increase in current expenses but also to invest in slum urbanization and transportation, among other services.

19 Estimates by José Roberto Rodrigues Afonso, based on data from the Ministry of Finance, IBGE, Ministry of Social Security, Municipal Financial Reports, National Finance Policy Council (Confaz).

20 Unless otherwise noted, “capital cities” or just “capital” refer to state capitals.

21 The richest regions are southeast, south, center west, and the poorest are north and northeast.

22 Estimates for 2015 are based on available data for 5,071 municipalities (out of 5,568). The available database of all municipalities in 2016 is less representative and includes around 4,400 municipalities.

Approximately 35.2 million people lived in the 12 selected capital cities in 2010. The population of these cities varied from about 1 to 11 million inhabitants. They are the nuclei of the most important Brazilian metropolitan regions. Despite the declining growth rate, some cities such as Manaus, São Luís, Goiânia and Curitiba, still attract a large number of people, surpassing the national average.

The population of the selected capital cities is concentrated in urban areas. Except for Manaus, they are among those with the highest population density, occupying 11 of the top 84 positions. Their share in the state population may be significant: Manaus holds more than 50 percent of the state population and Rio de Janeiro almost 40 percent. Overall, four capital cities are home to more than a quarter of the state population (see Table 4.2).

TABLE 4.2 CAPITAL CITIES DEMOGRAPHIC AND TERRITORY INDICATORS, 2010-16

MUNICIPALITY	STATE	REGION	2010				POPULATION 2016	POPULATION MUNICIPALITY/ STATE (IN PERCENTAGE)	
			POPULATION	URBANIZATION RATE	AREA (KM2)	POPULATION DENSITY HAB/KM2		2010	2016
MANAUS	AM	N	1,802,014	99.49	11,401	158	2,094,391	51.8	52.3
BELÉM	PA	N	1,393,399	99.14	1,059	1,315	1,446,042	18.3	17.5
SÃO LUÍS	MA	NE	1,014,837	94.45	835	1,216	1,082,935	15.4	15.6
FORTALEZA	CE	NE	2,452,185	100.00	315	7,787	2,609,716	29.0	29.1
RECIFE	PE	NE	1,537,704	100.00	219	7,038	1,625,583	17.5	17.3
SALVADOR	BA	NE	2,675,656	99.97	693	3,859	2,938,092	19.1	19.2
BELO HORIZONTE	MG	SE	2,375,151	100.00	331	7,167	2,513,451	12.1	12.0
RIO DE JANEIRO	RJ	SE	6,320,446	100.00	1,200	5,266	6,498,837	39.5	39.1
SÃO PAULO	SP	SE	11,253,503	99.11	1,523	7,388	12,038,175	27.3	26.9
CURITIBA	PR	S	1,751,907	100.00	435	4,025	1,893,997	16.8	16.8
PORTO ALEGRE	RS	S	1,751,907	100.00	497	2,838	1,481,019	13.2	13.1
GOIÂNIA	GO	CO	1,302,001	99.63	733	1,777	1,448,639	21.7	21.6
<b>TOTAL</b>			<b>35,288,154</b>		<b>19,242</b>		<b>37,670,877</b>		

Source: IBGE database, available at <https://www.ibge.gov.br/en/home-eng.html>.

The 2010 census indicates that the core municipalities of large metropolitan areas are poles of varying degrees of economic production and employment. They range from subnormal agglomerates, areas of very low standards of infrastructure that lack basic public services,<sup>23</sup> to neighborhoods with high levels of well-being.

The census also identified subnormal agglomerates, or informal areas, in 323 Brazilian municipalities, comprising 11.4 million inhabitants in 3.2 million residences. Fifty-five percent of these inhabitants (6.3 million) and residences

23 A subnormal agglomerate is a minimum of 51 residential units (shacks, houses, etc.), most of them lacking essential public services, located on public or private land, and generally densely located in a disorderly fashion (IBGE, 2011).

(1.8 million) were found in the 12 capitals selected for this case study. In Rio de Janeiro and Belém there were large subnormal agglomerates with more than 10,000 households. More than 20 percent of the population lived in five of these agglomerates.

As they are not integrated with the formal city, these subnormal agglomerates have a strong impact on the fiscal situation of the municipality. With respect to revenue, they reduce overall tax collection, especially property taxes, such as the the property tax and the tax on real estate conveyance (or ITBI). Regarding expenditure, they require high investment in local housing accessibility, including inclined planes, cable cars, open streets, extension of water supply, sewage, and energy. The cost of these projects tends to be higher than others carried out in areas connected to city services. Belém, for example, has a large contiguous area with almost 66,000 households (268,000 inhabitants) adjacent to the central area resulting from irregular occupation. In Rio de Janeiro, areas such as Rocinha had 23,300 households, in addition to smaller areas connected to them.

### Unemployment and Job Income

Table 4.3 shows a reduction in the unemployment rate. Employment income fluctuated, however, with a downward trend starting in 2014 in many capital cities. That year, Brazil hosted the World Cup, generating job opportunities, though temporary, in the capitals that hosted the games, among which were included many of the cities selected for this study except for Belém, São Luís, and Goiânia. In 2015, the decline in economic activity led to a steep rise in unemployment except for Recife. In 2016, unemployment became widespread and significantly deepened, when seven capitals experienced a real reduction or stability in the main job income. Even though, the Olympic Games were held in Rio de Janeiro that year, it did not restrain the growth in unemployment.

TABLE 4.3. MAIN JOB INCOME AND UNEMPLOYMENT RATE

MUNICIPALITY	STATE	REGION	MAIN JOB INCOME (R\$ 2016)					REAL VARIATION			
			2012	2013	2014	2015	2016	2013	2014	2015	2016
MANAUS	AM	N	2,213	2,122	2,239	2,048	1,894	-4.1	5.5	-8.6	-7.5
BELÉM	PA	N	1,718	1,950	1,802	1,652	1,843	13.5	-7.6	-8.3	11.6
SÃO LUÍS	MA	NE	1,644	1,484	986	1,625	1,628	-9.8	-33.5	64.8	0.2
FORTALEZA	CE	NE	1,792	2,087	1,928	1,862	1,763	16.5	-7.7	-3.4	-5.3
RECIFE	PE	NE	2,817	2,693	2,726	2,602	2,737	-4.4	1.2	-4.5	5.2
SALVADOR	BA	NE	2,065	2,029	2,231	2,169	1,948	-1.7	9.9	-2.8	-10.2
BELO HORIZONTE	MG	SE	3,082	3,026	3,026	2,911	2,636	-1.8	-0.0	-3.8	-9.4
RIO DE JANEIRO	RJ	SE	2,490	2,747	2,468	2,875	2,949	10.3	-10.2	16.5	2.6
SÃO PAULO	SP	SE	2,994	3,115	3,489	3,362	3,244	4.0	12.0	-3.6	-3.5
CURITIBA	PR	S	3,128	3,182	3,168	3,087	3,152	1.7	-0.5	-2.5	2.1
PORTO ALEGRE	RS	S	3,675	3,825	3,281	3,040	3,415	4.1	-14.2	-7.3	12.3
GOIÂNIA	GO	CO	2,749	2,771	2,744	2,589	2,560	0.8	-1.0	-5.6	-1.1

MUNICIPALITY	STATE	REGION	UNEMPLOYMENT RATE (IN PERCENTAGE)				
			2012	2013	2014	2015	2016
MANAUS	AM	N	12.5	10.5	8.3	12.3	16.8
BELÉM	PA	N	11.7	12.0	12.4	12.6	14.9
SÃO LUÍS	MA	NE	14.3	10.6	9.1	14.7	15.8

<b>FORTALEZA</b>	CE	NE	9.2	7.5	7.0	9.5	12.8
<b>RECIFE</b>	PE	NE	9.9	9.1	7.3	5.6	14.2
<b>SALVADOR</b>	BA	NE	9.5	11.0	12.7	16.1	17.0
<b>BELO HORIZONTE</b>	MG	SE	6.8	5.8	6.6	9.5	11.5
<b>RIO DE JANEIRO</b>	RJ	SE	6.6	5.8	4.8	5.1	7.8
<b>SÃO PAULO</b>	SP	SE	6.2	7.3	6.7	8.1	12.7
<b>CURITIBA</b>	PR	S	4.7	4.6	3.6	6.5	10.0
<b>PORTO ALEGRE</b>	RS	S	4.8	5.3	5.2	6.0	9.1
<b>GOIÂNIA</b>	GO	CO	4.4	5.2	2.9	5.9	7.9

Source: IBGE database, available at: <https://www.ibge.gov.br/en/statistics/social/labor/16809-quarterly-dissemination-pnad2.html?=&t=destaques>.

Note: Amounts per 3rd trimester, to avoid year end seasonal effects.

The comparison of the main job income levels of Brazilian cities highlights regional disparities: between 2012-16, the average income of the capital cities belonging to the southeast and midwest regions diverged strongly from those of the North and northeast regions except for Recife. São Paulo is historically the capital with the highest average income.

The simultaneous reduction in employment and job income as a result of the country's economic crisis impacted the fiscal situation of municipalities. To highlight a few aspects, the drop in job income may have a direct effect on property tax collection and an indirect effect through consumption, reducing municipal ISS as well as other taxes, which in turn affects intergovernmental grants. With respect to expenditure, there has been an increase in demand for public services by substituting private for public services such as education and health. It is important to note that the reduction in employment and especially job income is unlikely to be extended to the public sector, where most of the employees are public servants with job stability and downward wage rigidity.

## Economic Activity

In partnership with the State Statistical Agencies, the Instituto Brasileiro de Geografia e Estatística (IBGE) estimates the municipal GDP.<sup>24</sup> The first block of Table 4.4 shows stark differences in per capita GDP among the different capital cities studied. In 2014, São Paulo exceeded Rio de Janeiro by 14 percent. The average per capita GDP of the southeast and midwest capital cities was 67 percent higher than the average in those of the North and Northeast regions.

TABLE 4.4. GDP, PER CAPITA GDP, AND MUNICIPAL GDP/STATE GDP

MUNICIPALITY	STATE	REGION	2010			2014		
			GDP (R\$MILLION)	PER CAPITA GDP (R\$)	MUNICIPAL GDP/STATE GDP (IN PERCENTAGE)	GDP (R\$MILLION)	PER CAPITA GDP (R\$)	MUNICIPAL GDP/STATE GDP (IN PERCENTAGE)
MANAUS	AM	N	50,169	27,840	82.4	67,573	33,447	78.0
BELÉM	PA	N	18,801	13,493	22.7	28,706	20,034	23.0
SÃO LUÍS	MA	NE	18,211	17,945	39.3	26,326	24,738	34.3
FORTALEZA	CE	NE	37,002	15,089	46.6	56,729	22,057	45.0
RECIFE	PE	NE	33,370	21,701	34.3	50,688	31,513	32.7
SALVADOR	BA	NE	40,763	15,235	26.4	56,624	19,506	25.3
BELO HORIZONTE	MG	SE	59,203	24,926	16.9	87,657	35,188	17.0
RIO DE JANEIRO	RJ	SE	208,154	32,933	46.3	299,850	46,462	44.7
SÃO PAULO	SP	SE	450,492	40,031	34.8	628,065	52,797	33.8
CURITIBA	PR	S	58,123	33,177	25.8	78,892	42,315	22.7
PORTO ALEGRE	RS	S	42,725	30,315	17.7	63,991	43,458	17.9
GOIÂNIA	GO	CO	29,038	22,303	27.2	46,095	32,637	27.9

24 At the time the data for this study was collected, the GDP calculation made available by IBGE was through 2014. To illustrate the differences among the selected capitals, data from 2010 and 2014 in current values were used.

MUNICIPALITY	GROSS VALUE ADDED COMPOSITION, 2010 (IN PERCENTAGE)			
	GVA AGRICULTURE/TOTAL GVA	GVA INDUSTRY/TOTAL GVA	GVA SERVICES EXCLUDING PUBLIC ADMINISTRATION, HEALTH	GVA PUBLIC ADMINISTRATION, HEALTH, EDUCATION, SOCIAL SECURITY
MANAUS	0.4	48.9	39.5	11.2
BELÉM	0.2	16.8	68.1	14.9
SÃO LUÍS	0.1	26.4	60.8	12.7
FORTALEZA	0.1	19.7	65.1	15.1
RECIFE	0.1	18.0	68.4	13.6
SALVADOR	0.1	21.4	66.4	12.2
BELO HORIZONTE	0.0	20.9	66.9	12.2
RIO DE JANEIRO	0.0	17.2	66.9	16.9
SÃO PAULO	0.0	15.9	76.8	7.4
CURITIBA	0.0	22.7	68.1	9.2
PORTO ALEGRE	0.0	14.1	74.5	11.4
GOIÂNIA	0.1	22.5	64.3	13.1

MUNICIPALITY	GROSS VALUE ADDED COMPOSITION, 2014 (IN PERCENTAGE)			
	GVA AGRICULTURE/TOTAL GVA	GVA INDUSTRY/TOTAL GVA	GVA SERVICES EXCLUDING PUBLIC ADMINISTRATION, HEALTH	GVA PUBLIC ADMINISTRATION, HEALTH, EDUCATION, SOCIAL SECURITY
MANAUS	0.4	40.7	45.4	13.6
BELÉM	0.2	17.7	66.5	15.6
SÃO LUÍS	0.1	27.9	59.5	12.5
FORTALEZA	0.1	16.6	68.6	14.7
RECIFE	0.1	17.1	70.2	12.7
SALVADOR	0.1	18.7	67.6	13.6
BELO HORIZONTE	0.0	21.2	66.3	12.4

RIO DE JANEIRO	0.0	17.0	66.0	16.9
SÃO PAULO	0.0	13.0	79.7	7.3
CURITIBA	0.0	23.3	65.1	11.6
PORTO ALEGRE	0.0	12.9	75.8	11.3
GOIÂNIA	0.1	20.6	66.7	12.6

Source: IBGE database, available at <https://www.ibge.gov.br/en/home-eng.html>.  
Note: The last estimate of municipal GDP made available by the IBGE covers 2014.

Municipality participation in state GDP, among other political and economic implications, ensures a higher amount of state grants, given the rules that regulate the federal revenue sharing system.<sup>25</sup> A significant part of the state economy is concentrated in the capital cities selected for this study. Manaus accounts for more than three-quarters of the state's GDP, while Fortaleza and Rio de Janeiro account for around 45 percent. Between 2010 and 2014, 8 out of the 12 capitals lost their representativeness in the state economy, following a trend begun in the previous decade.

Regarding the sectoral composition, 60 percent or more of the gross value added (GVA) originated in the services sector. In some capital cities, such as Belém and Rio de Janeiro, more than 15 percent of GVA comes from the public administration. It should be noted that, according to the Constitution, federal entities cannot tax one another,<sup>26</sup> which reduces the municipal tax base.

### Expenditures per Capita

Expenditures generally increased sharply in 2010–12, the last year of municipal administrations, and decreased from 2015 on, as can be seen in Table 4.5. Between 2010 and 2016, the capitals are divided into three groups: i) those on of the South-and Southeast, which spent around R\$3,500 in 2016 twice the amount of the Northern Manaus; ii) Belém

25 Twenty-five percent of the state collection of a value added tax (VAT) is shared with each states' municipalities; 75 percent of the amount granted is driven by the value added in the municipality and another 25 percent by a specific state law. Generally, the state law benefits the poorer municipalities where economic activity is weak.

26 This norm does not apply to public companies, which are governed by private sector legislation on this matter.

and the Northeastern Salvador (average R\$1,700); and, in the middle, iii) Goiânia together with the other three Northeastern capitals, Recife, São Luís, and Fortaleza, averaged R\$2,300 per capital expenditures.

TABLE 4.5. EXPENDITURES PER CAPITA (R\$)

MUNICIPALITY	STATE	REGION	2010	2011	2012	2013	2014	2015	2016
MANAUS	AM	N	1,574	1,642	1,835	1,702	1,925	1,844	1,784
BELÉM	PA	N	1,569	1,559	1,555	1,667	1,940	1,902	1,649
SÃO LUÍS	MA	NE	2,323	2,351	2,243	2,341	2,351	2,271	2,220
FORTALEZA	CE	NE	1,812	1,987	1,974	2,138	2,219	2,197	2,100
RECIFE	PE	NE	2,118	2,273	2,459	2,297	2,613	2,563	2,331
SALVADOR	BA	NE	1,650	1,695	1,698	1,596	1,754	1,829	1,787
BELO HORIZONTE	MG	SE	2,878	3,064	3,251	3,322	3,605	3,453	3,208
RIO DE JANEIRO	RJ	SE	2,624	3,051	3,457	3,505	3,608	3,531	3,608
SÃO PAULO	SP	SE	3,334	3,472	3,671	3,592	3,717	3,692	3,688
CURITIBA	PR	S	3,311	3,536	3,797	3,824	3,783	3,679	3,581
PORTO ALEGRE	RS	S	3,156	3,357	3,625	3,616	3,776	3,626	3,616
GOIÂNIA	GO	CO	2,433	2,602	2,795	2,901	2,896	2,849	2,702

Source: Author's elaboration.

Payroll consumes the largest portion of expenditures, since public service is a labor-intensive operation. In seven of the capital cities studied,<sup>27</sup> personnel—including salaries, payments to retirees and survivors—accounts for around 54 percent of expenditures. Rio de Janeiro had the highest burden, reaching 63 percent of expenditures of this type in 2016. São Paulo has the lowest burden, averaging 41.2 percent, since the urban cleaning service is outsourced and accounted for as goods and services. Finally, the major and high indebted capitals—São Paulo, Rio de Janeiro and Belo Horizonte—must assign a larger portion of revenue to interest payments,

that range from average from 2.2 percent (Belo Horizonte) of Expense to 6.6 percent (São Paulo). Recent debt renegotiation relieved this burden.

### Tax Collection per Capita

The selected capital cities differ considerably with respect to tax collection per capita. Again, they fall into three groups: those in the south-southeast region; those in the north-northeast region, except Recife; and Goiânia, in the Midwest. In the extreme, São Paulo's per capita tax collection is four times the amount collected in Belém. On average, the per capita collection in the south and southeast regions is 2.5 times that of the north and northeast ones, and 1.6 times the average in Recife and Goiânia. Table 4.6 shows the evolution of tax collection per capita between 2010 and 2016.

TABLE 4.6 TAX COLLECTION PER CAPITA (R\$)

MUNICIPALITY	STATE	REGION	2010	2011	2012	2013	2014	2015	2016
MANAUS	AM	N	487	508	544	561	590	540	523
BELÉM	PA	N	420	445	488	492	517	511	490
SÃO LUÍS	MA	NE	582	659	710	691	663	691	635
FORTALEZA	CE	NE	495	528	568	570	637	641	630
RECIFE	PE	NE	812	869	969	979	1,044	991	952
SALVADOR	BA	NE	627	711	731	734	843	750	729
BELO HORIZONTE	MG	SE	1,111	1,204	1,277	1,261	1,375	1,352	1,309
RIO DE JANEIRO	RJ	SE	1,375	1,473	1,596	1,662	1,709	1,648	1,562
SÃO PAULO	SP	SE	1,764	1,897	2,068	1,979	2,052	2,052	1,986
CURITIBA	PR	S	1,072	1,175	1,306	1,280	1,293	1,338	1,284
PORTO ALEGRE	RS	S	1,227	1,300	1,324	1,323	1,370	1,331	1,326
GOIÂNIA	GO	CO	877	907	931	920	956	971	903

Source: Author's elaboration.

Until 2014, the tax collection was on an upward trend, which was reversed in the following two years when collections returned to around the 2011–12 average level. The retraction in the services sector in 2015 and 2016 by 2.7 percent per year<sup>28</sup> may explain part of this reduction. In addition, although there is no detailed information, it can be assumed that almost all the capital cities studied here had benefited from increased revenue related with the World Cup<sup>29</sup> until 2014, especially from construction associated with investment, which was the source of increased collection of the ISS.

On average, the ISS represented about half of capital cities' tax revenue between 2010–16, ranging from 57 percent in Manaus to 37 percent in Belo Horizonte. Property tax represented an average of 20 percent of all tax revenue, ranging from an average of 8.5 percent in São Luís to 30 percent in São Paulo and Belo Horizonte. In the latter municipality, the amended property tax legislation of 2009, which increased tax rates and updated property values assessment, explains the increase in collections between 2010–11.<sup>30</sup> Per capita collection rose to the level of Rio de Janeiro, surpassed only by São Paulo, which has among the highest per capita property values in Brazil.<sup>31</sup> It is curious to note that Belém, with more than 50 percent of the households in the informal sector, has a per capita property tax collection similar to that of São Luís, where 20 percent of the households are in subnormal agglomerates.

Besides ISS and the property tax, the ITBI accounts for another average 9 percent of total tax collection. The values recorded in the real estate transactions for ITBI payment purposes are close to the market price. The amount of ITBI collection compared to the property tax proves that real estate values recorded in the latter are understated. In fact, although the ITBI tax rate is higher than the property tax, the number of properties traded each year is a small fraction of the total households in property tax cadasters. Taxes on specific services, such as public lighting and garbage collection, account for 10 percent, and income tax withheld at source (or IRRF), accounts for another 10 percent, collected from the public employees' payroll.

28 GDP by sector in 2015–16 is available only for national GDP. Municipal GDP data are available until 2014.

29 Capital cities which hosted the games: all the selected ones but Belém, São Luís, and Goiânia.

30 The changes were implemented over two years.

31 It should be noted that, even if the municipality does not reassess real estate values, the consumer price index (IPCA) automatically adjusts them annually.

Overall, the recent decline in tax collection in the capital cities selected was due to the ISS, which experienced a real decline in tax collection and partially in the property tax. The ITBI also contributed negatively to overall collection due to the downturn in the real estate market between 2015-16. The IRRF expanded following the growth in the wage bill for public employees.

## Assessing the Fiscal Health of Municipalities

The evolution of revenue can be divided into two periods. During the first period, between 2010 and 2014, the main components—taxes, social contributions, and grants—increased in all municipalities. In 2015, revenue began to fall, because of shrinking current grants due to the federal and states fiscal crisis but also to a reduction in tax collection, as already explained. The southern and southeastern capital cities studied depend heavily on transfers from their states and were severely affected by the regional crisis, as was the case of Rio de Janeiro. The year 2016 was difficult for all of the capital cities, due to the impact of the crisis on the service sector and the further reduction in employment. Yet, in some cases, capital grants increased in 2016 to fund investments in the final year of municipal administrations. Although not significant compared to total revenue, grants are important to support investments. Other capital revenues were almost inexistent, except for São Paulo which regularly obtains an inflow of resources from urban operations.<sup>32</sup> This was especially the case in 2010, when around 5 percent of total revenue was collected from an instrument regulated by the City Statute —Law 10357/2001.

During 2010–14, social security contributions had the best performance, suggesting that the capital cities studied tried to improve their exclusive security systems funding.<sup>33</sup> In 2016, an average 70 percent of social security

<sup>32</sup> The Law 10257/01, known as City's Statute, set urban policy instruments —among which tax and financial instruments— to serve the public purpose.

<sup>33</sup> In Brazil, municipalities can set up exclusive pension schemes for their employees, collecting contributions from them, normally 11 percent of the salaries, and from the employer (from the Municipal Treasury, usually 22 percent). If these resources are not enough to cover the expenses with retirees and survivors, as it is usually the case, the Municipal Treasury must complement it. Some municipalities, in addition to having funds under a simple distribution financial system, began to set capitalization funds

benefits—payments to retirees and survivors—were funded by social contributions from employees and employers. This participation varied from around 46 percent in São Paulo to 80 percent in Rio de Janeiro.

In view of the reduction in revenues and institutional and budget constraints and/or high political cost of reducing expenses, municipalities sought extraordinary revenues: withdrawing judicial deposits, developing programs to recover tax debts, and selling public servants payroll service to banks are some of the means they found to fund fiscal year budgetary execution. Another reason was to avoid sanctions<sup>34</sup> for failure to comply with the Fiscal Responsibility Law, which restricts personnel expenses to 60 percent of net current income. Thus, by abandoning good financial management practices, municipalities maintained and even increased permanent expenses based on temporary revenues.

Capital grants may play an important role in investment financing, mainly in municipalities with limited access to credit operations. Examples include Salvador and São Paulo, which funded 18 percent and 16 percent of total investment in 2010–16, respectively.

Between 2010 and 2016, expenses exceeded revenues in 8 out of 12 capitals, despite the adjustment made in 2016, when it was clear that the crisis was escalating. Personnel expenses played the major role, particularly the amount related to retirees and survivors, which continued to rise and reached significant values, such as in Porto Alegre and São Paulo (over 50 percent of revenues were spent on employee compensation). Although social contributions contributed significantly to retirees and survivor's payments, participation decreased in 2016 in almost all the capital cities surveyed. Belém, São Luís, Recife, Salvador, and Curitiba attempted to adjust their current expenses by reducing maintenance costs or through the use of goods and services.

Those costs include increasing payments to private entities, mainly for health services. Several states and cities hired social organizations (SO) either because they were considered more efficient or to avoid increasing personnel expenses.<sup>35</sup> This explains the dramatic growth<sup>36</sup> in maintenance costs in Rio de Janeiro—42 percent between 2010 and 2016—surpassing

for the new public servants. All the capitals have own social security schemes.

34 Restrictions to receive voluntary transfers, to contract credit operations, among others.

35 Expenses with SO's are recorded as Use of Goods and Services

36 It should be noted that, as the values are corrected for inflation, the variations are real.

revenue growth by 20 percent. Besides health, education in daycare centers and social care are the major contractors of private institutions (Garson, 2016).

Overall, most of the capital cities saw large declines in their gross operating balance, depleting investment financing due to the growth of another compulsory expenditure: debt amortization. In São Paulo, despite debt renegotiation and limited access to credit operations, debt amortization doubled in 2011, in comparison to the previous year, and continued to grow. By 2016, it was triple the 2010 amount.

Investments fluctuated, intensifying in 2013, the year before the World Cup. In some cases, they increased until 2014, after which they began to shrink due to the lack of revenue sources such as capital grants and credit operations.

Resources from credit operations usually follow the rhythm of the projects they finance. They trended sharply upward in 2010–13, except in the highest indebted cities of São Paulo and Salvador, which practically had no access to these instruments. In 2010 and 2011, Rio de Janeiro entered into a debt restructuring operation in two installments of more than R\$1.0 billion. From then on, Credit Operations continued to grow, reaching around 50 percent of investments in 2013–15, mainly for urban mobility projects to prepare the city for the 2014 World Cup and the Olympic Games in 2016. This process resulted in accelerated growth of the capitals indebtedness, with the consequent increase in the debt service burden, mainly interest, but also amortization. The most recent operations may still be inside the grace period, paying only interest. Debt renegotiations with the federal government dampened the impact. São Paulo, Salvador and Rio de Janeiro were the main beneficiaries. Debts to the Federal Treasury, contracted mainly in previous rounds of renegotiations (the last one being in 1999–2000) were revised, taking another price index to correct outstanding debt and a lower interest rate.

# Fiscal Indicators and Infrastructure Measures

In this section, we discuss the capital cities studied fiscal health using 10 financial indicators, two of which cover different categories: external measures, financial measures, tax and revenue measures, debt measures, and infrastructure measures. In some areas, calculation was not possible due to a lack of data related to municipal tax bases. In addition, there is no information available on the asset consumption ratio or the extent of investment in capital assets (closing cost balance/closing net book value). To fill this gap, indicators related to capital expenditure and other proxies are considered infrastructure measures.

## Population Growth

The indicator assesses whether there are demand pressures to expand and even to diversify municipal services. Population growth is accompanied by a change in its composition by age and, therefore, in the composition of the demand for public services. An accelerated growth rate indicates the arrival of immigrants from abroad and from neighboring municipalities/states, which may require investments in urban infrastructure and expansion of education and health services. These population movements and their consequences are rarely considered in planning and budgeting in Brazilian cities.

Table 4.7 shows a reduction in the population growth rate. Manaus, Goiania, and São Luís still exceed the country's average growth rate with 0.86 percent in 2014, 0.83 percent in 2015, and 0.80 percent in 2016. Manaus is the leading city when it comes to growth rate. Among other adverse consequences, population growth has led to an increase in the number of households in irregular situation on the periphery of cities.

TABLE 4.7. POPULATION GROWTH

MUNICIPALITY	STATE	REGION	POPULATION GROWTH RATE (IN PERCENTAGE)			POPULATION 2016
			2014	2015	2016	
MANAUS	AM	N	1.92	1.85	1.78	2,094,391
BELÉM	PA	N	0.49	0.47	0.45	1,446,042
SÃO LUÍS	MA	NE	0.97	0.91	0.84	1,082,935
FORTALEZA	CE	NE	0.79	0.75	0.72	2,609,716
RECIFE	PE	NE	0.56	0.54	0.52	1,625,583
SALVADOR	BA	NE	0.67	0.63	0.58	2,938,092
BELO HORIZONTE	MG	SE	0.48	0.46	0.44	2,513,451
RIO DE JANEIRO	RJ	SE	0.37	0.36	0.34	6,498,837
SÃO PAULO	SP	SE	0.63	0.60	0.59	12,038,175
CURITIBA	PR	S	0.84	0.80	0.78	1,893,997
PORTO ALEGRE	RS	S	0.32	0.30	0.28	1,481,019
GOIÂNIA	GO	CO	1.35	1.30	1.25	1,448,639
<b>TOTAL</b>						<b>37,670,877</b>

Source: IBGE database, available at <https://www.ibge.gov.br/en/home-eng.html>.

## Operating Deficit

Sound financial management requires controls on expenses to ensure that they can be covered by current revenues derived from taxes, social contributions, and other revenues primarily allocated to the current operation of the municipality to assess the extent to which revenues cover operating expenses, leaving resources to finance transactions in nonfinancial assets (investments), financial assets, and debt amortization under gross savings. The ratio gross saving to revenue (excluding capital transfers) (see Table 4.8) enables not only comparisons among capital cities with respect to the percentage of revenue that each capital has

been able to allocate to investments and/or debt amortization, but also acquisition of financial assets (generally not significant).<sup>37</sup>

**TABLE 4.8. PERCENTAGE OF GROSS SAVING/(REVENUE - CAPITAL TRANSFERS)**

MUNICIPALITY	STATE	REGION	2010	2011	2012	2013	2014	2015	2016
MANAUS	AM	N	14.3	11.8	10.6	14.9	12.5	7.0	4.3
BELÉM	PA	N	11.0	10.5	13.2	9.8	6.0	5.2	8.1
SÃO LUÍS	MA	NE	-7.4	6.6	8.8	4.7	2.3	4.3	6.9
FORTALEZA	CE	NE	10.4	9.3	9.9	-1.5	3.4	8.5	7.0
RECIFE	PE	NE	9.4	10.7	12.0	12.9	8.8	2.7	8.2
SALVADOR	BA	NE	-0.9	8.9	7.7	15.7	14.2	8.3	8.4
BELO HORIZONTE	MG	SE	10.3	12.6	9.8	7.2	4.0	5.1	16.4
RIO DE JANEIRO	RJ	SE	17.4	14.1	8.2	11.3	6.8	8.6	1.6
SÃO PAULO	SP	SE	12.9	11.5	9.7	10.3	7.4	13.8	4.7
CURITIBA	PR	S	9.4	8.6	9.3	5.0	7.9	8.8	12.1
PORTO ALEGRE	RS	S	12.7	14.2	7.9	6.7	10.9	9.9	7.3
GOIÂNIA	GO	CO	9.3	8.4	2.9	-5.7	-1.5	0.3	4.0

Source: Ministry of the Economy, Government of Brazil, available at: [https://www.gov.br/tesouronacional/en?set\\_language=en](https://www.gov.br/tesouronacional/en?set_language=en).

Expenses generally increased sharply between 2010–12, the last year of the terms of municipal administrations, and decreased starting in 2015. Revenue followed a similar path, but performance varied widely among the capital cities surveyed. For many of them, initiatives to reduce expenses came only in 2016, after it was evident that the crisis revenues would not be fleeting.<sup>38</sup>

<sup>37</sup> For a better understanding of this flow of sources and uses, see the Methodological Annex at the end of this chapter, which discloses the statement of operations of every capital in 2010 and 2016. If necessary, see the 2014 government finance statistics (GFS) manual (De Clerck and Wickens, 2019: 69)..

<sup>38</sup> The Fiscal Responsibility Law, Article 42 restricts the assumption of expenditure commitments in the last eight months of the term. This may explain the sharp increase in gross saving in 2016, the final year of 2013–2016 mayoral administrations.

Some cities with more restricted access to credit, such as Belém, Manaus, and Salvador, were able to save enough to sustain their investments, although not enough to meet their needs. The situation in Belo Horizonte was different. Even with access to a reasonable amount of credit, it closed the fiscal year in deficit. It was not until 2016 that its revenue increased and its expenses decreased. Rio de Janeiro's performance worsened between 2014 and 2016. To maintain the level of investment until the 2016 Olympic Games, the city had to rely on a substantial amount of capital transfers and loans, which caused it to accumulate debt.

Without the extraordinary revenue that it had in 2015 (from judicial deposits, special programs to recover tax debts in arrears), São Paulo faced a dramatic reduction in its operating balance in 2016, since expenses were kept the at same level as in 2014. Finally, highly indebted cities, such as Belo Horizonte, Rio de Janeiro, and São Paulo, must maintain a high operating balance to repay debt.

### Own-Source Revenues Relative to Total Revenues

Reliance on own-source revenues reduces the vulnerability of cities from a reduction in transfers<sup>39</sup> that would have to be compensated by an increase in own-source revenues or a reduction in expenditures. Table 4.9 shows significant differences in revenue autonomy among the capital cities studied. Again, the southern and southeastern capitals ones are in a better position, with own-source revenues representing around 63 percent of total revenues. These are followed by Goiânia and Recife at 50 percent, standing out from the other municipalities of the north and northeast, where the ratio averages 42 percent.<sup>40</sup> As cities in states with a less vibrant economy and worse socioeconomic indicators, the capitals of the north and northeast regions have a weaker tax base (in addition to deficiencies in tax management), which reduces their own-source revenues.

39 Transfers refer to two categories of the GFS 2014 classification coding system: grants and transfers (not elsewhere classified).

40 The indicator for Manaus 2010-13 is understated due to problems in registering social contributions.

TABLE 4.9 OWN-SOURCE REVENUES RELATIVE TO TOTAL REVENUES (IN PERCENTAGE)

MUNICIPALITY	STATE	REGION	2010	2011	2012	2013	2014	2015	2016
MANAUS	AM	N	14.3	11.8	10.6	14.9	12.5	7.0	4.3
BELÉM	PA	N	11.0	10.5	13.2	9.8	6.0	5.2	8.1
SÃO LUÍS	MA	NE	-7.4	6.6	8.8	4.7	2.3	4.3	6.9
FORTALEZA	CE	NE	10.4	9.3	9.9	-1.5	3.4	8.5	7.0
RECIFE	PE	NE	9.4	10.7	12.0	12.9	8.8	2.7	8.2
SALVADOR	BA	NE	-0.9	8.9	7.7	15.7	14.2	8.3	8.4
BELO HORIZONTE	MG	SE	10.3	12.6	9.8	7.2	4.0	5.1	16.4
RIO DE JANEIRO	RJ	SE	17.4	14.1	8.2	11.3	6.8	8.6	1.6
SÃO PAULO	SP	SE	12.9	11.5	9.7	10.3	7.4	13.8	4.7
CURITIBA	PR	S	9.4	8.6	9.3	5.0	7.9	8.8	12.1
PORTO ALEGRE	RS	S	12.7	14.2	7.9	6.7	10.9	9.9	7.3
GOIÂNIA	GO	CO	9.3	8.4	2.9	-5.7	-1.5	0.3	4.0

Source: Ministry of the Economy, Government of Brazil, available at: [https://www.gov.br/tesouronacional/en?set\\_language=en](https://www.gov.br/tesouronacional/en?set_language=en).

Beyond tax revenue, own-source revenues encompass social contributions and other revenues.<sup>41</sup> In the period 2010–16, taxes accounted for around 65 percent (50 percent in Curitiba and 72 percent in Recife). Social contributions accounted for an average of 15 percent, and other revenues for 20 percent of own-source revenues.

An important feature of Brazilian fiscal federalism is budgetary rigidity: 40 percent of the main municipal taxes —property tax, ISS, IRRF, and ITBI— are earmarked to education (25 percent) and health (15 percent). They represented around 60 percent of total own-source revenues during 2010–16, which means that 24 percent of those revenues are strictly conditioned. social contributions, which were allocated to the social security system, comprised almost 40 percent earmarking of own-source revenues. This

41 From fines, penalties, tax and overdue payments, extraordinary revenue, among others.

increases fiscal vulnerability and restricts the freedom to adjust to a crisis. In Brazil, once revenue earmarking is established, it is difficult to eliminate it. Thus, despite the slower pace in the school-age population growth and aging of the population, resources earmarked for education increased.

### Balance Sheet Indicators – Financial Assets x Financial Liabilities

TABLE 4.10. BALANCE SHEET - MAIN COMPONENTS, 2014-16

MUNICIPALITY	STATE	REGION	2014				2015			
			NET WORTH D=A+B-C	NONFINANCIAL ASSETS (A)	FINANCIAL ASSETS (B)	LIABILITIES (C)	NET WORTH D=A+B-C	NONFINANCIAL ASSETS (A)	FINANCIAL ASSETS (B)	LIABILITIES (C)
MANAUS	AM	N	7,453	2,088	7,250	1,886	7,443	2,183	7,835	2,575
BELÉM	PA	N	1,651	325	2,248	922	-3,559	327	2,145	6,031
SÃO LUÍS	MA	NE	1,987	336	3,055	1,403	1,799	409	3,080	1,690
FORTALEZA	CE	NE	2,255	933	2,946	1,624	2,354	1,136	2,744	1,526
RECIFE	PE	NE	1,087	993	2,129	2,035	1,829	1,189	2,761	2,121
SALVADOR	BA	NE	26,309	4,040	26,159	3,891	33,946	3,888	34,572	4,514
BELO HORIZONTE	MG	SE	4,276	1,981	8,090	5,794	4,349	2,242	8,345	6,239
RIO DE JANEIRO	RJ	SE	27,642	6,392	47,494	26,244	26,268	10,184	46,375	30,290
SÃO PAULO	SP	SE	20,223	24,958	95,648	100,383	-74,596	27,392	99,662	201,650
CURITIBA	PR	S	4,590	3,119	4,776	3,304	4,583	2,949	5,373	3,740
PORTO ALEGRE	RS	S	3,904	1,939	4,233	2,269	2,874	2,022	3,134	2,283
GOIÂNIA	GO	CO	6,492	1,181	6,790	1,478	6,562	1,165	7,103	1,706

MUNICIPALITY	STATE	REGION	2016				FINANCIAL ASSETS/LIABILITIES		
			NET WORTH D=A+B-C	NONFINANCIAL ASSETS (A)	FINANCIAL ASSETS (B)	LIABILITIES (C)	2014	2015	2016
MANAUS	AM	N	7,887	2,468	8,239	2,820	3.8	3.0	2.9
BELÉM	PA	N	1,338	318	2,241	1,220	2.4	0.4	1.8
SÃO LUÍS	MA	NE	2,168	446	3,506	1,784	2.2	1.8	2.0
FORTALEZA	CE	NE	-6,597	1,451	2,402	10,450	1.8	1.8	0.2
RECIFE	PE	NE	3,179	1,287	4,472	2,579	1.0	1.3	1.7
SALVADOR	BA	NE	35,729	4,049	34,540	2,860	6.7	7.7	12.1
BELO HORIZONTE	MG	SE	6,654	2,880	9,324	5,550	1.4	1.3	1.7
RIO DE JANEIRO	RJ	SE	14,437	12,850	25,883	24,296	1.8	1.5	1.1
SÃO PAULO	SP	SE	-72,258	21,387	78,612	172,257	1.0	0.5	0.5
CURITIBA	PR	S	3,978	2,907	5,133	4,062	1.4	1.4	1.3
PORTO ALEGRE	RS	S	3,098	2,138	3,529	2,569	1.9	1.4	1.4
GOIÂNIA	GO	CO	8,417	1,296	9,021	1,900	4.6	4.2	4.7

Source: Authors' elaboration.  
 \* Consumer price index (IPCA) of IBGE.  
 Note: Amounts in R\$ million 2016.

The fiscal position of Belém declined sharply in 2014, due to the employment-related pension provision, most of which was canceled in 2015. Despite the substantial growth of nonfinancial assets throughout the period, Fortaleza ended with negative net worth due mainly to employment-related pension provision in 2016. Nonfinancial assets in Rio de Janeiro also expanded, which contributed to the increase in net worth. However, this was offset by a sharp increase in the provision for losses in receivables in arrears, primarily taxes (as mandated by the Municipal Court of Accounts), reducing both financial assets and net worth. The debt-to-tax indicator for Sao Paulo shows how the city benefited from recent debt renegotiation, but other factors operated in the opposite direction to turn net worth highly negative: in 2015, the city began to record an employment-related pension provision, increasing liabilities. In 2016, despite debt reduction, the provision for losses in receivables in arrears reduced financial assets and net worth.

Differences in recording the new accounting procedures make comparisons difficult. Salvador, for example, records huge amounts of receivables without any provision for losses, which explains the high amounts of net worth. Besides that, the ratio financial assets/liabilities increased exclusively because of decreasing liabilities due to debt renegotiation. If renegotiation had occurred in 2012 and had been reflected in 2013, this difference could have been offset or at least reduced. Thus, it is not possible to say that the situation in 2016 was better than it was in 2015; only that it is more accurate.

The composition of assets and liabilities is worth analyzing to understand the results described above. Table 4.11 presents some indicators calculated for the current position, fiscal year 2016. Those indicators highlight key accounts:

- Tax and other receivables in arrears/financial assets percent - representing around 60 percent or over for eight municipalities in 2016.
- Consolidated debt/liabilities percent and pension entitlements/the percent of liabilities adds up to more than 80 percent in no capitals in 2016.<sup>42</sup>

Comparing arrears effectively received in the fiscal year to the stock —tax receivables and other receivables in arrears— it is evident that, in many cases, it will take a long time to recover revenue: 61 years in São Paulo and 22 years in Rio de Janeiro. The indicator is generally higher in municipalities that still have not made provision for losses, such as Salvador, suggesting that nonfinancial assets, and thus net worth, are overestimated. On the other hand, Curitiba expects to recover less than 10 percent of tax and other receivables in arrears.

The indicators show the imbalance between financial assets and liabilities. The long period generally found for recovering tax and other receivables in arrears does not fit the required term to repay debt and cover payments to retirees. Liabilities will be due much earlier: public servants in general retire after 30 years (males) and 35 years (females) or earlier, and teachers (5 years sooner). Employees have different requirements to apply for social security benefits, so the average term is less than 25/35. Average debt repayment is also less than 30 years. This is a relevant result for assessing short-term pressure on municipal finances.

42 The amount of consolidated debt was obtained from Fiscal Responsibility Law Reports by the municipality. This may explain the indicator found for Porto Alegre, over 100 percent.

TABLE 4.11. BALANCE SHEET INDICATORS, 2016

MUNICIPALITY	STATE	REGION	2014	2015		
			TAX AND OTHER RECEIVABLES IN ARREARS/FINANCIAL ASSETS (IN PERCENTAGE)	CONSOLIDATED DEBT/ LIABILITIES (A) (IN PERCENTAGE)	PENSION ENTITLEMENTS/ LIABILITIES (B) (IN PERCENTAGE)	(C) = (A)+(B)
MANAUS	AM	N	36.3	54.1	38.2	92.3
BELÉM	PA	N	66.6	63.4	25.8	89.1
SÃO LUÍS	MA	NE	77.8	33.3	11.7	44.9
FORTALEZA	CE	NE	36.0	11.7	87.4	99.0
RECIFE	PE	NE	59.6	39.3	42.0	81.3
SALVADOR	BA	NE	58.4	46.9	37.9	84.7
BELO HORIZONTE	MG	SE	59.1	70.7	9.7	80.4
RIO DE JANEIRO	RJ	SE	73.6	58.6	21.2	79.8
SÃO PAULO	SP	SE	74.1	27.4	66.1	93.5
CURITIBA	PR	S	8.9	27.0	50.1	77.1
PORTO ALEGRE	RS	S	17.8	64.1	40.4	104.5
GOIÂNIA	GO	CO	71.0	37.3	26.9	64.2

MUNICIPALITY	STATE	REGION	2016		
			REVENUE FROM OVERDUE LIABILITIES*/TAX RECEIVABLES AND OTHER REC IN ARREARS - LESS PROVISION FOR EXPECTED LOSSES (D) (IN PERCENTAGE)	NUMBER OF YEARS TO RECOVER PRESENT STOCK OF RECEIVABLES IN ARREARS (E)=1/(D)*100	PROVISION FOR LOSSES/ RECEIVABLES IN ARREARS
MANAUS	AM	N	2.1	46.7	0.0
BELÉM	PA	N	3.3	30.7	0.0
SÃO LUÍS	MA	NE	1.0	101.2	13.1
FORTALEZA	CE	NE	3.6	27.9	45.9
RECIFE	PE	NE	3.3	30.1	70.0

SALVADOR	BA	NE	0.7	152.8	0.0
BELO HORIZONTE	MG	SE	3.0	33.8	21.8
RIO DE JANEIRO	RJ	SE	4.5	22.1	55.3
SÃO PAULO	SP	SE	1.6	61.2	39.6
CURITIBA	PR	S	47.8	2.1	91.6
PORTO ALEGRE	RS	S	29.8	3.4	75.1
GOIÂNIA	GO	CO	1.2	81.5	0.0

Source: Authors elaboration.

## Debt-to-Tax Ratio

As a standard measure of a government's fiscal sustainability, this indicator measures the ability of the city to pay back with tax revenues. The intense recourse to indebtedness to support investments partly explains the growth of debt. In most of the capital cities studied, the debt-to-tax ratio increased in 2016 compared to 2010. This was the case of Belém, Belo Horizonte, Curitiba Fortaleza, Manaus, Porto Alegre, and São Luís. In the particular case of São Luís, the extraordinary growth in 2013 results from the recognition of debts related to overdue social security payments. Yet, in Recife, the 2011 adjustment went in the opposite direction, recalculating the debt with the Social Security National Institute (INSS).

Other factors also affected the debt trajectory in 2010-16. The debt stock varied due to a revision of the amount due to the federal government.<sup>43</sup> This amount was significant for some cities, such as São Paulo, Salvador, Rio de Janeiro and Recife. In 2015, the participation in the total stock was, respectively: 84 percent, 73 percent, 38 percent and 22 percent, explaining the fall in the indicator in 2016.

Another factor was the high exchange rate variation in 2015 of 42 percent, which negatively affected municipalities heavily indebted in dollars. It increased the foreign debt stock sharply in places such as Fortaleza,

43 Supplementary Law 148/2014 changed the criteria for indexation and reduced the interest rate on state and municipal debts with the federal government, from 6 percent to 9 percent to 4 percent p.a. The outstanding debt was recalculated using the IPCA instead of the previous General Price Index- IGP-DI, which had been having a much larger increase since the previous debt renegotiation, under Law 9496/97.

where it equaled 61.4 percent of total debt in 2015, as well as Belém (39 percent), Rio de Janeiro (28 percent), Belo Horizonte (26 percent), Recife (25 percent), São Luís (21 percent), and Porto Alegre (17 percent), (see Table 4.12).

**TABLE 4.12. DEBT-TO-TAX RATIO (IN PERCENTAGE)**

MUNICIPALITY	STATE	REGION	2010	2011	2012	2013	2014	2015	2016
MANAUS	AM	N	43.7	53.2	49.5	71.6	57.9	104.8	139.4
BELÉM	PA	N	28.9	45.4	56.5	81.4	77.4	92.9	109.2
SÃO LUÍS	MA	NE	8.7	8.3	12.0	69.3	62.6	80.5	86.4
FORTALEZA	CE	NE	37.9	45.8	50.2	70.0	70.1	78.5	74.2
RECIFE	PE	NE	101.8	49.5	51.0	58.3	58.5	72.4	65.6
SALVADOR	BA	NE	175.2	143.8	140.5	135.1	107.2	99.7	62.6
BELO HORIZONTE	MG	SE	97.3	116.0	111.8	132.0	121.4	132.3	119.3
RIO DE JANEIRO	RJ	SE	166.6	157.9	147.7	137.8	147.5	179.4	140.2
SÃO PAULO	SP	SE	440.7	416.2	396.0	397.9	375.3	394.2	197.6
CURITIBA	PR	S	41.6	43.5	39.8	49.8	46.6	45.1	45.1
PORTO ALEGRE	RS	S	55.1	61.7	60.5	59.7	65.8	83.8	83.9
GOIÂNIA	GO	CO	56.2	49.2	49.1	46.6	52.0	50.2	54.2

Source: Ministry of the Economy, Government of Brazil, available at: [https://www.gov.br/tesouronacional/en?set\\_language=en](https://www.gov.br/tesouronacional/en?set_language=en).

### Debt Charges Relative to Own-Source Revenues

In seven capitals, debt charges were below 6 percent throughout most of the period. They began to rise toward the end, as a consequence of an accelerated increase in the debt stock. In Rio de Janeiro, despite the debt stock reduction in 2016 due to renegotiation of federal debt, the indicator stabilized after three years of heavy inflow of loans.

São Paulo, under a strong constraint to hire new debt in the period 2010–16, kept the indicator stable yet quite high most of the time, around 15 percent. In 2015, it succeeded in reducing the revenue commitment to 9.5

percent, with the help of federal renegotiation. Salvador followed a similar path (see Table 4.13).

**TABLE 4.13. DEBT CHARGES RELATIVE TO OWN-SOURCE REVENUES (IN PERCENTAGE)**

MUNICIPALITY	STATE	REGION	2010	2011	2012	2013	2014	2015	2016
MANAUS	AM	N	7.8	7.5	8.2	7.8	4.6	6.0	7.2
BELÉM	PA	N	3.6	4.3	4.1	4.5	6.1	6.1	7.8
SÃO LUÍS	MA	NE	5.4	4.1	3.7	3.6	4.7	5.7	6.6
FORTALEZA	CE	NE	5.7	3.1	3.3	3.8	2.7	2.6	4.2
RECIFE	PE	NE	4.9	5.5	5.6	5.8	4.6	5.9	5.6
SALVADOR	BA	NE	13.4	11.0	10.6	10.5	5.8	6.4	3.8
BELO HORIZONTE	MG	SE	7.6	10.2	11.0	12.2	7.8	8.5	10.0
RIO DE JANEIRO	RJ	SE	13.0	7.2	6.3	6.6	7.1	4.9	5.0
SÃO PAULO	SP	SE	14.5	16.7	16.0	13.2	15.2	9.5	9.4
CURITIBA	PR	S	2.6	2.0	1.9	2.4	4.5	4.8	4.5
PORTO ALEGRE	RS	S	4.7	4.0	4.4	4.8	4.3	5.5	6.3
GOIÂNIA	GO	CO	4.0	3.4	3.1	3.2	3.0	2.7	3.1

Source: Source: Ministry of the Economy, Government of Brazil, available at: [https://www.gov.br/tesouronacional/en?set\\_language=en](https://www.gov.br/tesouronacional/en?set_language=en).

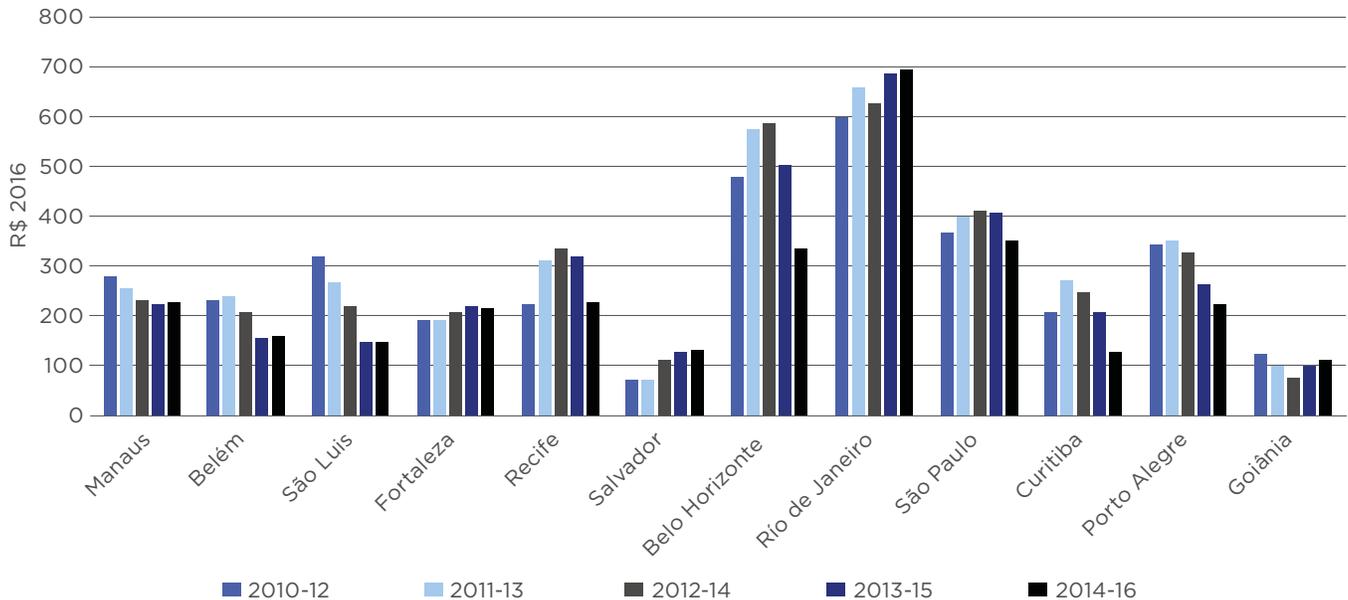
### Capital Expenditure Per Capita

The amount of capital expenditure per capita indicates the amounts being spent each year on infrastructure to replace, repair, or acquire new assets. As investments tend to be lumpy, a three-year average provides a better measure of the allocation of resources to infrastructure.

Figure 4.1 below shows a downward trend, except in Fortaleza and Salvador, accompanying the shortfall in revenue. Except for Curitiba, the southern and southeastern capital cities studied again reached higher amounts. The differences are mitigated by other factors related mainly to the existence

of resources to finance investments, either through fiscal year saving (see two previous indicators) or the ability to raise capital transfers and/or credit operations.

**FIGURE 4.1. CAPITAL EXPENDITURE PER CAPITA (THREE-YEAR AVERAGE)**



Source: Authors' elaboration.

Higher investment does not necessarily mean that the municipality is compensating for asset depreciation or providing adequate infrastructure. To preserve the value of its assets, a city would have to invest at least the amount of depreciation each year. This indicator must also be qualified by other infrastructure measures that assess the extent of service delivery and infrastructure.

There is no pattern relating the level of capital expenditure to expenditure. Rio de Janeiro kept high levels of investment, which were strongly supported not only by credit operations, but also by federal transfers for projects related to the 2014 World Cup and the 2016 Olympic Games.

During this period, the indicators move in opposite directions: investments fall in relation to operating expenses, becoming extremely dependent on capital transfers and principally credit operations, which increase the importance of its financing. Another feature of this process is that even the

capital cities that had not formerly take on a significant amount of debt began to do so. Examples of this are Manaus in 2016 and São Luís and Goiânia in 2015 and 2016.

TABLE 4.14. CAPITAL EXPENDITURE LEVEL AND FINANCING

MUNICIPALITY	STATE	REGION	RATIO OF CAPITAL EXPENDITURE TO OPERATING EXPENSE (IN PERCENTAGE)						
			2010	2011	2012	2013	2014	2015	2016
MANAUS	AM	N	18.9	19.9	11.9	13.1	12.9	10.7	12.9
BELÉM	PA	N	9.2	15.0	20.6	9.6	7.2	8.6	10.9
SÃO LUÍS	MA	NE	13.0	12.3	16.5	6.1	6.1	6.8	6.4
FORTALEZA	CE	NE	10.4	9.6	9.6	8.8	10.8	10.2	8.7
RECIFE	PE	NE	7.8	10.0	11.1	18.7	11.6	8.9	6.3
SALVADOR	BA	NE	5.3	3.1	4.5	5.5	9.6	6.8	5.7
BELO HORIZONTE	MG	SE	13.1	16.0	17.6	19.9	14.7	9.2	4.9
RIO DE JANEIRO	RJ	SE	14.0	24.3	19.9	15.6	17.9	24.6	15.9
SÃO PAULO	SP	SE	9.4	10.7	11.4	11.4	11.1	10.7	6.7
CURITIBA	PR	S	3.6	6.6	7.0	8.3	4.2	3.7	2.3
PORTO ALEGRE	RS	S	9.6	9.9	11.0	9.0	6.9	5.6	5.6
GOIÂNIA	GO	CO	6.0	5.0	3.2	2.6	1.9	6.0	4.1

MUNICIPALITY	STATE	REGION	INTERGOVERNMENTAL TRANSFERS AND CREDIT OPERATIONS/CAPITAL EXPENDITURE (IN PERCENTAGE)						
			2010	2011	2012	2013	2014	2015	2016
MANAUS	AM	N	21.4	23.5	27.8	23.9	30.4	26.3	118.8
BELÉM	PA	N	41.8	38.7	23.4	67.6	15.7	50.1	75.2
SÃO LUÍS	MA	NE	2.1	5.5	10.9	5.3	7.0	54.9	39.1
FORTALEZA	CE	NE	34.7	41.8	59.0	46.0	50.0	21.2	68.0
RECIFE	PE	NE	28.8	41.0	77.1	42.6	47.7	72.8	48.0
SALVADOR	BA	NE	47.8	71.9	19.6	2.4	3.8	7.3	25.2
BELO HORIZONTE	MG	SE	32.1	46.3	57.6	60.8	52.3	38.1	49.0

<b>RIO DE JANEIRO</b>	RJ	SE	21.3	9.9	19.1	32.5	55.8	52.4	84.5
<b>SÃO PAULO</b>	SP	SE	15.5	16.0	16.4	14.0	15.8	14.2	29.3
<b>CURITIBA</b>	PR	S	43.3	34.3	53.2	42.9	67.2	40.2	58.7
<b>PORTO ALEGRE</b>	RS	S	31.0	53.8	23.1	30.7	73.0	54.7	56.8
<b>GOIÂNIA</b>	GO	CO	2.0	2.1	24.7	6.3	18.5	39.6	33.7

Source: Ministry of the Economy, Government of Brazil, available at: [https://www.gov.br/tesouronacional/en?set\\_language=en](https://www.gov.br/tesouronacional/en?set_language=en).

### Providing Urban Services

An analysis of fiscal health should consider infrastructure measures, specifically those related to the availability of services that are the responsibility of municipalities (or shared with other levels of government). This will help to assess the extent to which cities are meeting the demands of their citizens or generating pressures not yet fully reflected in fiscal indicators. Table 4.15 shows information on services provided by municipalities (e.g., garbage collection) or shared with other municipal, state, or federal jurisdictions (e.g., water and sanitation utilities). It compares the proportion of urban populations served by public services in 2010 and 2015 (when most recent information at the municipal level is available).

TABLE 4.15. URBAN SERVICES DELIVERY, 2010 AND 2015 (IN PERCENTAGE)

MUNICIPALITY	STATE	REGION	URBAN GARBAGE COLLECTION SERVICE		URBAN WATER SERVICE		URBAN SEWAGE SERVICE	
			2010	2015	2010	2015	2010	2015
MANAUS	AM	N	95.7	98.5	96.5	85.9	21.4	10.5
BELÉM	PA	N	97.8	92.8	88.2	92.8	7.8	12.9
SÃO LUÍS	MA	NE	95.3	100,0*	88.3	85,4*	48.4	48,23*
FORTALEZA	CE	NE	100.0	97.3	87.1	84.3	48.3	49.0
RECIFE	PE	NE	100.0	100.0	82.9	84.7	35.2	40.0
SALVADOR	BA	NE	92.0	96.7	92.2	92.2	76.0	79.8
BELO HORIZONTE	MG	SE	95.0	96.0	100.0	94.9	100.0	91.3
RIO DE JANEIRO	RJ	SE	100.0	100.0	19.2	98.3	70.1	83.1
SÃO PAULO	SP	SE	100.0	100.0	100.0	100.0	97.0	97.0
CURITIBA	PR	S	100.0	100.0	100.0	100.0	93.0	100.0
PORTO ALEGRE	RS	S	100.0	100.0	100.0	100.0	87.7	89.7
GOIÂNIA	GO	CO	100.0	100.0	100.0	100.0	76.9	88.8

Source: National Sanitation Information System (SNIS) 2003-15.

\*Value in 2014, since 2015 is not available.

The socioeconomic conditions and the fiscal capacity of the municipalities and their respective states are strongly related. As previously mentioned, it is more difficult for states and capitals with weaker tax bases to provide services. Nevertheless, other factors also influence service provision, such as technical skills.

Although there is excellent coverage regarding garbage collection, the same is not true for sewage service, particularly in the north region (Manaus and Belém), but also in the municipalities of the northeast. In the southeast region, Rio de Janeiro provides the fewest urban services, due, among other factors, to the large number of households in subnormal agglomerates. With respect to urban water services and sewage services, there has been no significant improvement and, in some cases, the indicators show deterioration. Although states play a greater role in water distribution and sewage collection and treatment, this is a shared responsibility that calls for huge investments not commonly supported by fiscal year savings. They

require other sources, such as credit operations, which are not always available (or available in adequate amounts).

## Concluding Remarks: Are Brazilian Capital Cities Fiscally Healthy?

This study examined the fiscal health of 12 of the largest state capitals in Brazil. It considered all aspects of fiscal health—long-term versus short-term, external versus internal measures, and budgetary versus financial measures. Where necessary, attempts were made to compensate for the lack of information, mainly in the areas of tax base and infrastructure measures. Urban infrastructure was assessed by the level of service delivery in areas of municipal responsibility, such as (e.g., garbage collection), or shared responsibility (e.g., water and sewage services), where the states are important suppliers.

The analysis of the profile indicators highlighted the differences among capital cities in the richer regions. Nevertheless, to the extent possible, the study attempted to highlight some specific situations, such as the large areas of subnational agglomerates in Belém and Rio de Janeiro. Although they have quite different levels of economic activity and thus of per capita taxes, both municipalities must deal with the high cost of providing infrastructure and services to informal areas. Some cities, like Manaus, still receive a significant inflow of new residents every year, which requires investment and expansion of public services.

The trends in job income and in unemployment exacerbated the economic and political crisis. Taxpayers' economic capacity fell while the demand for municipal services such as health and education, previously provided by the private sector, rose. Whereas taxes and expenses per capita showed a similar trends, increasing until 2014–15 and falling from then on, differences in these indicators among the capital cities were consistent with those related to economic activity and job income. In some cases, there was a time lag to adjust public expenses to declining municipal revenues. Table 4.16 shows the main findings for each city's indicators.

TABLE 4.16. 20 CAPITAL CITIES FISCAL INDICATORS

MUNICIPALITY	STATE	REGION	POPULATION GROWTH 2014-16 (IN PERCENTAGE)	OWN-SOURCE REVENUES TO TOTAL REVENUES 2010-16 (IN PERCENTAGE)	OPERATING EXPENSES X OPER REVENUE: GROSS SAVING/ (REVENUE- CAPITAL TRANSFERS) 2010-16 (IN PERCENTAGE)	CAPITAL EXPENDITURE PER CAPITA: THREE-YEAR AVERAGE 2010-16 (R\$)	CAPITAL EXPENDITURE TO OPERATING EXPENSE 2010-16 (IN PERCENTAGE)
MANAUS	AM	N	Average 1.85 percent. downward trend. Still extremely high, exceeding country's growth: 0.86 percent in 2014 to 0.80 percent-2016	Still low, but extremely good performance, from 31.2 percent in 2010 to 41.5 percent by 2016	Very good performance until 2014, with 14.3 percent - 2010 to 12.5 percent 2014, plunged to 4.3 percent-2016	Relatively good position in N-NE, downward trend, 20 percent reduct: R\$281 between 2010-12 to R\$225 between 2014-16	Good performance: from average 19.4 percent in 2010-11 to 12.3 percent in 2012-16.
BELÉM	PA	N	Low, average 0.47 percent	Still low, but good performance: from 37.1 to 41.8 percent	Good performance: from 11 percent in 2010 to 13.2 percent by 2012. Downward trend 2013-2014, reversed to 8.1 percent - 2016	Low position in N-NE from R\$233 between 2010-12, plunged to R\$154 in 2013-15, 31 percent reduction from 2010-12 to 2014-16	Low, around 9 percent, except average 18 percent in 2011-12
SÃO LUÍS	MA	NE	Average 0.91 percent, close to country's average growth rate: 0.86 percent in 2014, 0.83 percent in 2015, and 0.80 percent in 2016.	Very low, relatively stable, from 36.6 percent to 38.4 percent	Bad performance: negative 7.4 percent in 2010. Average 5.4 percent between 2011-16, improving to 6.9 percent in 2016	Better position in N-NE 2010-12: R\$320, plunged to R\$219 between 2012-14, R\$147 from 2013-15 on, that is, a 54 percent reduction	From good position around 14 percent in 2010-12, rapidly decrease to around 6.4 percent (stable) in 2013-16
FORTALEZA	CE	NE	Average 0.75 percent. Closing to country's average 0.83 percent	Close to average N-NE, fluctuating: 40.0 percent in 2010. to 48.0 percent in 2015. Slumped to 44.2 percent in 2016	Average performance: from 10.4 percent 2010 to 7.0 percent in 2016. Negative 1.5 percent in 2013	Upward trend, increasing from low R\$190 in 2010-12 to R\$215 in 2014-15 (+13 percent)	Fluctuating around 9.7 percent between 2010-16
RECIFE	PE	NE	Low, average 0.54 percent	Above average NE, moderate increase from 46.4 to 50.3 percent	Good performance until 2013, from 9.4 percent in 2010 to 12.9 percent 2013, to 8.2 percent in 2016	Better average in N-NE from R\$222 in 2010-12 to average R\$322 in 2011-15, back to R\$225 in 2014-16. Better than Curitiba	Beginning 7.8% in 2010, most of the time around 10.4 percent, downward trend since 2014, end at 6.3 percent in 2016
SALVADOR	BA	NE	Low, average 0.63 percent	Very good performance, from 45.9 to 54.3 percent, best in NE, close to Belo Horizonte, in SE	Good performance along period. From negative 0.9 percent in 2010, peaked 15.7 percent in 2013, stable 8.3 percent between 2015-16	Extremely low R\$72 between 2010-13, upward trend but still R\$131 in 2014-16, higher than Goiânia	Low level, only higher than Goiânia, fluctuated around 5 percent, except 9.6% in 2014

MUNICIPALITY	STATE	REGION	POPULATION GROWTH 2014-16 (IN PERCENTAGE)	OWN-SOURCE REVENUES TO TOTAL REVEN 2010-16 (IN PERCENTAGE)	OPERATING EXPENSES X OPER REVENUE: GROSS SAVING/ (REVENUE- CAPITAL TRANSFERS) 2010-16 (IN PERCENTAGE)	CAPITAL EXPENDITURE PER CAPITA: THREE-YEAR AVERAGE 2010-16 (R\$)	CAPITAL EXPENDITURE TO OPERATING EXPENSE 2010-16 (IN PERCENTAGE)
BELO HORIZONTE	MG	SE	Low, average 0.46 percent	Relatively good position, but moderate increase, from 51.8 percent in 2010 to 55.3 percent by 2016	good performance 2010-12, average 11 percent. Sharp decrease: 2012-15-average 5.4 percent, recovering by 2016 with 16.4 percent	Second highest, after Rio de Janeiro, R\$480 in 2010-12, downward trend since R\$588 in 2012-14 to R\$335 between 2014-16; 30 percent reduct 2010-16	Upward trend since 13.1 percent in 2010 to 20 percent in 2013, continuous and sharp fall to 4.9 percent in 2016
RIO DE JANEIRO	RJ	SE	Very low, average 0.36 percent	Very good position, but stable since 2011, from 63.9 percent in 2010 to 67.7 percent between 2011 and 2016	Good performance 2010-11, average 15.8 percent, to 8.7 percent between 2012-15, still good. Plunged to 1.6 percent in 2016	Average R\$653 in 2010-16, upward trend due to World Cup and Olympic Games	Extremely high level, fluctuating from 14 percent in 2010 up to 25 percent in 2015, and 16 percent in 2016
SÃO PAULO	SP	SE	Low, average 0.61 percent	The best position, but fluctuating from 65.1 percent in 2010, to 71.0 percent in 2015, and 69.7 percent in 2016	Good performance, average 11 percent between 2010-15, sharp decrease to 4.7% in 2016	Third position in SE, begins R\$368 in 2010-12 to R\$413 in 2012-14, decreasing to R\$352 in 2014-16	Stable around 11 percent, slumping to 6.7 percent in 2016
CURITIBA	PR	S	Average 0.81 percent, close to country's average growth rate: 0.83 percent	Good position, but slight downturn-64.8 percent to 63.7 percent	Average performance average 8.2 percent 2010-15, picked up to 12.15 in 2016	Lower in S-SE, behind Manaus-Recife, R\$206 in 2010-12 to disappointing R\$127 in 2014-16	Lower position among capitals, exc Goiânia; 3.6 percent in 2010, improving to 8.3 percent in 2013, down to 2.3 percent in 2016
PORTO ALEGRE	RS	S	The lowest. average 0.30 percent	Good position, but stable - 61.5 percent to 62.7 percent	Average to good performance. Fluctuates period average 10 percent, but 12.7 percent in 2010 and 7.3 percent in 2016	downward trend from R\$344 in 2010-12 to R\$222 in 2014-16, at the level of Manaus, Fortaleza, and Recife	Stable around 10 percent between 2010-13, downward to 5.65 in 2015-16. In SSE, fourth posit; behind average performance N-NE
GOIÂNIA	GO	CO	High: average 1.30 exceeds the country's growth rate: 0.86 percent-2014. 0.86 percent in 2014, 0.83 percent in 2015, and 0.80 percent in 2016	Close to Recife, but no progress. 51.0 percent in 2010, to 46.8 percent in 2013, and 50.1 percent in 2016	Very bad performance among capitals: negative 5.7 percent in 2013 and 1.5 percent in 2014- only 4 percent in 2016	Extremely low level, reducing R\$123- 2010-12 to R\$73 in 2012-14, improving to R\$112 between 2014-16, still too low	Extremely low; average 4 percent, peaking 6 percent in 2010 and 2015, but shrinking to 1.9 percent in 2014

MUNICIPALITY	STATE	REGION	URBAN SERVICES DELIVERY 2010 AND 2015 (IN PERCENTAGE)	DEBT TO TAX RATIO 2010-16 (IN PERCENTAGE)	DEBT CHARGES/ OWN-SOURCE REVENUES 2010-16 (IN PERCENTAGE)	FINANCIAL ASSETS/ FINANCIAL LIABILITIES 2014-16 (IN PERCENTAGE)
MANAUS	AM	N	High coverage garbage collection with 98.5 percent in 2015, relatively low in water service, high deficiency in sewage service	Sharp and continuous increase from 43.7 percent in 2010 to 139.4 percent in 2016, only below high indebted Rio and São Paulo	Average high 7 percent 2010-16, recent increase in debt not fully reflected in debt charges	Although decreasing, high among capitals, but no provision for losses on receivables in arrears
BELÉM	PA	N	Close to Manaus, better in water service availability	Sharp and continuous increase from 29 percent in 2010 to 109 percent in 2016, second highest position in N-NE	Continuous increase from 3.6 percent in 2010 to high 7.8 percent in 2016	High amount receiv in arrears, no provisions, inflates financial assets, strong fluctuation
SÃO LUÍS	MA	NE	High coverage garbage collection, relatively low water service, only half of population with sewage service	From average 10% in 2010-12, to 69.3 percent in 2013, for debt recognition, upward trend- 86.4 percent in 2016, due to new loans	From 4.2 percent in 2010-13, picking up to high 6.6 percent in 2016	Financial assets= 2x liabilities; receivables in arrears = 78 percent of liabilities
FORTALEZA	CE	NE	Same levels as São Luis	Began in a reasonable position- 38 percent, but continuous and sharp increase to 74 percent	From 5.7 percent in 2010 to average 3 percent in 2011-15, up to 4.2 percent in 2016, second lowest position after Goiânia	Lower among capitals, sharp decrease in 2016 due to recognition of pension entitlements
RECIFE	PE	NE	High coverage garbage collection, relatively low water service, only 40 percent of population with sewage service	Reduced 2010-11: recal debt with INSS, sharp increase-49.5 percent in 2011 to 65.6 percent in 2016, federal debt revised in 2016	Fluctuated around 5.5 percent in 2011-16	Positive trend, due to increase in financial assets
SALVADOR	BA	NE	High coverage garbage collection/water service, good position in sewage service: 80 percent of population covered	Decreasing from very high 172 percent in 2010 to 63 percent by 2016; federal debt revised in 2016	Decreasing sharply from very high 11.4%/ average 2010-13 to 3.8 percent in 2016; no access to credit along the period	Improved indicator 2016, reducing liabilities, mainly long term debt; no provfor losses on receiv in arrears
BELO HORIZONTE	MG	SE	High coverage 2015: garbage collection- 96 percent water service- 95 percent, and sewage service 91.3 percent	Although the lowest in SE, high value, upward trend until 2013 with 132 percent, fluctuating around 125 percent in 2014-16, still high	Average 10 percent between 2010-16, second lower positon, high cost of debt	Average position among capitals, improved indicator; uncreas in financial assets, reductio in liabilities
RIO DE JANEIRO	RJ	SE	Very high coverage 2015: garbage collection/water service close to 100 percent, lower positon in sewage service in SE	Around average 156 percent in 2010-15, to 140 percent - 2016- federal debt revision; new debt to prepare city: Olympic Games, etc	Reducing from 2010 with 13 percent, downward trend to 5 percent between 2015-16: despite new credit operations, significant growth in own revenues	Reduced indicator: decrease on financ assets due to 2016 provision for losses on receiv in arrears

MUNICIPALITY	STATE	REGION	POPULATION GROWTH 2014-16 (IN PERCENTAGE)	OWN-SOURCE REVENUES TO TOTAL REVEN 2010-16 (IN PERCENTAGE)	OPERATING EXPENSES X OPER REVENUE: GROSS SAVING/ (REVENUE- CAPITAL TRANSFERS) 2010-16 (IN PERCENTAGE)	CAPITAL EXPENDITURE TO OPERATING EXPENSE 2010-16 (IN PERCENTAGE)
SÃO PAULO	SP	SE	Best position, along with Curitiba	Although no new credit oper, around 400 percent in 2010-15, significant redcut to 198 percent -2016 debt revision	Highest position due to debt stock, around 15 percent in 2010-14, to 9.5 percent in 2015-16	Reduced indicator: although 2016 debt stock redcut, provisioned for pensions and losses on receiv arrears
CURITIBA	PR	S	Best position, all services covering 100 percent population	Lowest position among all the capitals, stable around 45 percent	Lowest position (with Goiania), although climbing from 2.6 percent in 2010 to 4.5 percent in 2016	Stable around 1.4; high provision for losses on receivables in arrears
PORTO ALEGRE	RS	S	Very high coverage 2015: garbage collection/water service 100 percent, relatively low position in sewage service in S/SE	Around 60 percent between 2010-13, sharp increase to 84 percent in 2016, median position among capitals 2016	Around 4 percent between 2010-14, sharp increase to 6.3 percent in 2016, median position among capitals 2017	Reduced indicator after 2014 due to provision for losses on receivables in arrears
GOIÂNIA	GO	CO	Very high coverage 2015: garbage collection/water service 100 percent, close to Porto Alegre in sewage service	Atable around 50% in 2011-15, increasing to 54 percent in 2016, second lowest position	Lowest position (with Curitiba), although slightly reducing from 4 percent-2010 to 3.1 percent by 2017	High indicator, due to large amount of receivables in arrears with no provision for losses

Note: N = north region; NE = northeast region. SE = southeast region, S = south region, CO = midwest region.  
Source: Authors' elaboration.

There are substantial differences among the capital cities in terms of reliance on own-source revenues. Those resources generally make up a much greater proportion of financing for expenditures in the southern and southeastern capital cities than in the more vulnerable located in the northern and northeastern regions— although the indicator improved throughout the period under study in all of the cities except Goiânia. The Brazilian revenue-sharing system design aims to equalize the spending power among the those, assigning much larger amounts to municipalities in poorer regions. Nevertheless, the disparities are still large, and imbalances persist between spending capacity and revenue raising, leaving these populations vulnerable.

Sound financial management should guarantee an adequate amount of savings to amortize debt and partially fund investments. Some cities, such as Salvador, have restricted access to credit operations, while Fortaleza was able to maintain the ratio of gross savings to revenue. Rio de Janeiro

faced a sharp increase in expenses, and fell to the last position in 2016, while still maintaining a high level of investment to host the Olympic Games, highly supported by credit operations. When amortization is deducted from gross savings to cover fixed expenses (i.e., revenue less personnel expense, maintenance costs, and debt service interest and amortizations), it becomes clear that the city has declining capacity to finance investments and is increasingly dependent on capital transfers and credit operations. Rio de Janeiro and São Paulo have just 0.4 percent of current revenue<sup>44</sup> available for investment. In December 2016, the federal government passed a law setting a ceiling for federal spending for a period of 20 years. Although constitutional transfers may be preserved, capital transfers are voluntary and are subject to change.

States as well as some major municipalities underwent tight fiscal controls from 2000 until 2007, following a round of debt renegotiation in 1997–2000 that involved almost all the 27 states and 185 municipalities (Manoel, Garson, and Mora, 2013). To compensate for the effects of the 2008–09 crisis and to maintain a high level of public investment in infrastructure, which were heating up the country’s economy, the federal government eased the controls, and a new wave of indebtedness followed, even in states and municipalities with a more fragile fiscal situation. In addition to domestic credit operations with official banks, the federal government guaranteed a substantial number of operations using international financial institutions such as the World Bank and the IDB, among others. For states and municipalities, it became evident that the increase in indebtedness did not expand investment by the same amount; rather, it substituted resources with higher current expenses, mainly by an increase in diluted savings for personnel.

The ratio of capital expenditure to operating expenses fell in 2016 in 10 of the capital cities studied, after having fluctuated in the period 2010–15. As a common feature of this process, the participation of capital transfers and credit operations expanded significantly over time, which explained the sharp rise in the debt-to-tax ratio. Starting in 2014, some of the capital cities that were highly indebted to the federal government, such as Rio de Janeiro, Salvador, and São Paulo, benefitted from a new round of debt renegotiations and saw huge reductions in their debt to the National Treasury. Debt charges varied according to the stock composition (domestic x foreign debt, debt with the federal Treasury/other debts, and associated costs).

44 Revenue less capital transfers.

Infrastructure measures—assessed by the level of urban services delivered—varied among the capital cities studied. With respect to urban infrastructure, the south and southeast capitals generally performed better. Rio de Janeiro almost equaled Salvador but was lowest in the south-southeast region with respect to sewage services.

The indicators on fiscal performance between 2010 and 2016 illuminate the degree of vulnerability of the selected capital cities. Besides the dependence of current transfers to deliver services, the increasing dependency on capital transfers to finance investments collided with the federal law to set an expenditure ceiling.

Moreover, budget rigidity associated with constitutional revenue earmarked to health and education, as well as legislation regarding public employees' benefits, dramatically reduce flexibility, or fiscal resilience, that is, the capacity to absorb and quickly recover from adverse shocks. This rigidity has the effect of reducing spending commitments.

Finally, regarding sustainability, there was a sharp rise in the debt stock-to-tax ratio in most of the cases, even considering that taxes increased throughout the period. The more accurate accounting records, including provisions for losses in receivables and for pension entitlements, reduced the financial assets-to-liabilities quotient in 2016 in most of the cases. This shrank network, or even yielded negative values, such as in São Paulo, despite the city's significant reduction in debt resulting from the recent renegotiation with the federal government.

The ratio of financial assets to liabilities tells only part of the story. Looking at the composition of each category adds elements to the analysis of liquidity, showing the imbalance in the period when the cities recover receivables in arrears and their payment schedule of the major components of liabilities, pension entitlements, and debt. Receivables in arrears, mainly consisting of overdue tax payments, are the major component of financial assets in most capitals.

In conclusion, the analysis reveals evident weaknesses in the fiscal health of the 12 major Brazilian capitals. The balance sheet indicators highlight the need to improve tax management to reduce receivables in arrears and to recover the present stock. In addition, the employees' pension systems need urgent revision. This is a concern of municipalities, federal, and state governments alike.

Finally, although this study relied on consideration information that illuminated the fiscal health of selected Brazilian capitals, an agenda for future research (once data are available) should include estimating the age of the cities' physical assets and the needs for repair. To better explore tax bases, municipalities should receive regular updated estimates of tax bases of property tax and ITBI, as well as ISS.

## Methodological Annex

### ANNEX 1. BRAZILIAN GEOGRAPHIC REGIONS, STATES AND CAPITALS

BRAZILIAN REGIONS		BRAZILIAN STATES		STATE CAPITALS
CO	Midwest	GO	Goiás	Goiânia
N	North	AM	Amazonas	Manaus
		PA	Pará	Belém
NE	Northeast	MA	Maranhão	São Luís
		CE	Ceará	Fortaleza
		PE	Pernambuco	Recife
		BA	Bahia	Salvador
S	South	PR	Paraná	Curitiba
		RS	Rio Grande do Sul	Porto Alegre
SE	Southeast	MG	Minas Gerais	Belo Horizonte
		RJ	Rio de Janeiro	Rio de Janeiro
		SP	São Paulo	São Paulo

The main data source for Brazilian municipal finances is the database Finances of Brazil (FINBRA), available for download from the website of the Ministry of Finance/Secretariat of the National Treasury. This database displays budget execution from every fiscal year, including current and capital revenues, expenditures, and balance sheet accounts—assets and liabilities recorded according to the accounting procedures set by the Ministry of Finance. Consultations of municipal sites to resolve inconsistencies and to bring additional elements to the analysis supplemented the information from the database.

Revenue is recorded on a cash basis and expenditure under an accrual basis. In this study, amounts are presented in 2016 prices, using the average IPCA of IBGE. Thus, the variations are real.

The Ministry of Finance has been setting new accounting procedures to align Brazilian Accounting Standards to international standards of public sector accounting. The full implementation of the new procedures by municipalities is scheduled for 2023. Although there is a schedule to be followed, the rate of compliance is different from one municipality to

the next. Some procedures, such as the recognition, measurement, and disclosure of infrastructure assets, depreciation, amortization or depletion, revaluation, and impairment will be required starting in 2023.

To enable this study to be compared to other countries' procedures and to calculate the indicators, financial information gathered according to Brazilian Public Sector Accounting Standards was translated into the government finance statistics (GFS) 2014 classification coding system. The analysis will refer to the GFS 2014 categories: Appendix 8 in the Manual (p. 385) provides the classification codes used in the GFS framework to identify types of transactions, other economic flows, and stock positions of assets and liabilities. Appendix 9 (p. 396) contains a glossary of terms used in the framework.

For balance sheets, the Ministry of Finance has been setting new accounting procedures. Their full implementation by municipal governments should also be completed by 2023. Nevertheless, the pace of implementation has been different among municipalities. The major changes are related to balance sheet accounts, which must report accurate provisions for losses in receivables and obligations related to the employees' social security system in those municipalities with an open social security system, such as capital cities.

To comply with the new procedures, other municipalities began to reevaluate the stock of tax and other receivables in arrears, recognizing significant provisions for losses and reducing the value of financial assets, since this is the major component of total assets. Some have updated nonfinancial assets—fixed assets values—increasing their value and net worth. Employment-related pension provisions were also recognized, increasing total liabilities.

In addition, capital cities renegotiated part of their debt stock with the federal government, reducing them substantially, this time with a positive impact on net worth. The final balance of changes in assets and liabilities and its impact on net worth was not in the same direction nor at the same time. The final impact of these changes varies among municipalities, and it is not possible to know whether they have already implemented the changes and to what degree, which makes the data from the balance sheets difficult to compare between periods and among municipalities.

Chapter  
**05**

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BY  
JAIME BONET  
AND GERSON  
JAVIER PÉREZ

# COLOMBIA

MUNICIPAL FISCAL  
HEALTH IN  
LATIN AMERICA



# Context

Colombia is unique in Latin America from a fiscal standpoint. It has the most decentralized spending, with SNGs accounting for about 10.4 percent of the GDP, similar to a federal country like Mexico, with 10.6 percent. (Beverinotti, Lora, and Villela, 2012). SNGs execute around 40 percent of total public expenditures. Decentralization in Colombia has been a milestone in the management and performance of SNGs. Since the adoption of the Political Constitution in 1991, departments and municipalities have had significant participation in current national revenues, as high as 46 percent at the time, the main purpose of which is to improve coverage in the health and education sectors (Bonet, Pérez, and Ayala (2016)). Colombia has 32 departments (states) in addition to Bogota, the capital, and 1,101 municipalities (see Map 5.1). With almost 50 million people, Colombia is a country with high heterogeneity in terms of population, income, poverty, and general development. Most people live in urban areas (76 percent) and generate 85 percent of the national GDP (DNP, 2014).

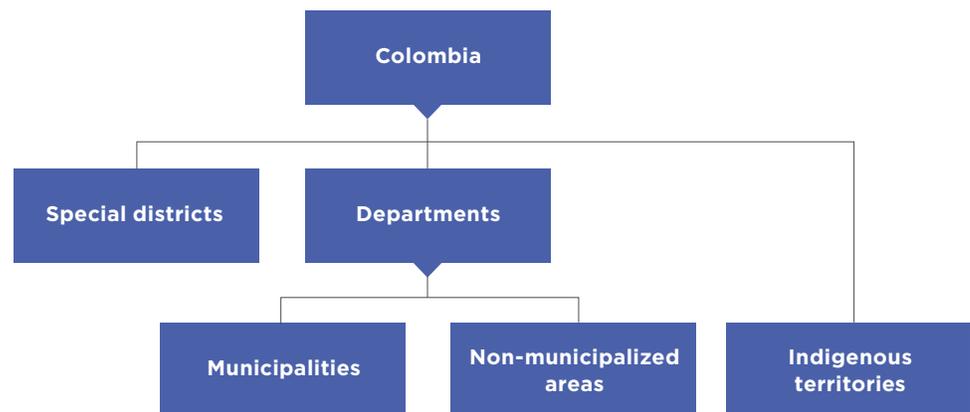
**MAP 5.1. COLOMBIA'S TERRITORIAL ORGANIZATION**



Source: Authors' elaboration.

Administratively, according to the Political Constitution, the status of territorial entities is given to departments, districts, municipalities, and indigenous territories (see Figure 5.1). This distribution gives the units autonomy to manage resources to be able to improve their residents' welfare and quality of life.

**FIGURE 5.1. COLOMBIA'S ADMINISTRATIVE AND TERRITORIAL STRUCTURE**



Source: Authors' elaboration based on data from the National Department of Statistics (Departamento Nacional de Estadística, or DANE), available at <https://www.dane.gov.co/index.php>.

Departments are made up of municipalities, which in turn are made up of 8,059 smaller territories called population centers and classified as villages (*corregimientos*), police districts, or settlements. There are 20 *corregimientos* that do not belong to any municipality and are classified as non-municipalized areas. Districts are a special (second-level) class of municipalities with an independent legal, political, fiscal, and administrative regime. In Colombia, there are five districts: Bogota, the capital city, which is under a special regime; the tourist and cultural district of Cartagena de Indias; the tourist, cultural, and historic district of Santa Marta; the industrial and port district of Barranquilla; and the industrial, port, bio-diverse, and ecotourism port of Buenaventura. Finally, indigenous territories are by definition communal with non-alienable properties where residents are only allowed to carry out environmentally friendly activities. In Colombia, indigenous reservations cover approximately 323,000 km<sup>2</sup>, or 0.3 percent of the country (Pérez, Higuera, and Bonilla, 2017).

In Colombia, measures of fiscal health have not been widely used, either in the literature or as a policymaking instrument. However, the general concept has been present as fiscal performance since the early 2000s through congressional mandates of the central government (Law 617/2000). The purpose of this decision was to closely monitor the management and financial viability of departments and municipalities. The DNP carries out this monitoring by calculating indicators on the Fiscal Performance Index (Índice de Desempeño Fiscal, or IDF). The index consists of six components: self-financing of operating expenses, support of debt service, dependence of national transfers and royalties, own-source revenue generation, extent of investment, and savings capacity. After indicators are collected, a single index is computed for each department and municipality ranging from 0 to 100, with the lowest score given to those SNGs with the poorest performance.

Despite its advances, the IDF faced conceptual and methodological challenges that reduced its explanatory capacity, making it more difficult to use for public policy purposes. Because of this, the DNP designed a new indicator, Municipal Performance Measurement (Medida de Desempeño Municipal, or MDM), with updated evaluation standards and which focuses subnational performance on results-oriented public management. Among the main differences between the IDF and the MDM is that while the former does not measure development achievements, the latter considers well-being indicators—such as access to and coverage of basic services—and territorial heterogeneities.<sup>45</sup>

The other fiscal performance tool in Colombia is the annual Territorial Fiscal Viability Report, prepared by the General Directorate of Fiscal Support, within the Ministry of Finance. These reports make brief assessments of SNGs using socioeconomic indicators such as population, GDP, unemployment, inflation, poverty, inequality, and the most relevant fiscal performance characteristics. Their purpose is to present a general overview of the financial solvency of SNGs. The most important fiscal dimensions included are compliance with fiscal responsibility adjustments, credit risk rating, and the risks and challenges faced by SNGs.

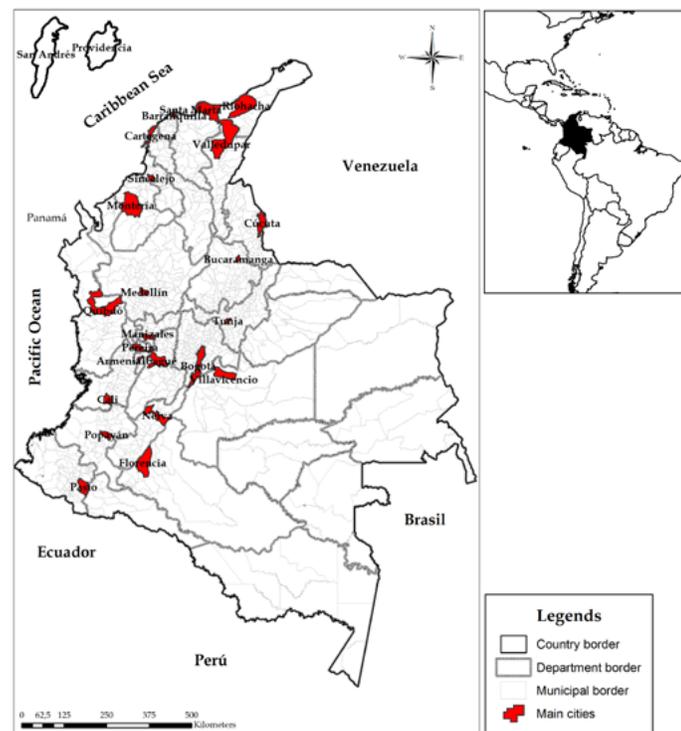
The present study computes and analyzes 15 indicators for the 23 main municipalities in the country, following the approach described in Chapter 2. There are nine capitals for which there is not enough information or

45 The two dimensions consider the following variables: public management: own-source revenues mobilization, execution of resources, open government and transparency, and land-use planning; results: education, health, public services, security, and urban coexistence.

data are not continuously reported to national authorities. In other cases, even when reported, the information shows unexpectedly high variability and outliers difficult to explain. These capitals belong to a group of departments known as Nuevos Departamentos: Arauca, Casanare, Putumayo, Amazonas, Guania, Guaviare, Vaupes, Vichada, all of which are located in the middle and southeastern parts of the country.

For this reason, the final sample of municipalities used for computing fiscal health indicators is the group of 23 capitals, for which the information is mostly available (see Figure 5.3). As can be seen in Map 5.2, these cities are socio-demographically representative, since most of the population lives in this half of the territory. However, it is not representative from a regional standpoint, since there is not a single city from the less populated half of the country.<sup>46</sup>

**MAP 5.2. SPATIAL LOCATION OF COLOMBIA'S 23 MAIN CITIES**



Source: Authors' elaboration based on data from DANE, available at <https://www.dane.gov.co/index.php>.

Note: For the purpose of this document, the following is the regional classification of the cities: Caribbean: Riohacha, Santa Marta, Barranquilla, Valledupar, Cartagena, Sincelejo, and Montería; eastern: Tunja, Bogotá, Villavicencio, Cucuta and Bucaramanga; Central: Medellín, Manizales, Florencia, Neiva, Armenia, Pereira, and Ibagué; Pacific: Popayán, Quibdó, Pasto, and Cali.

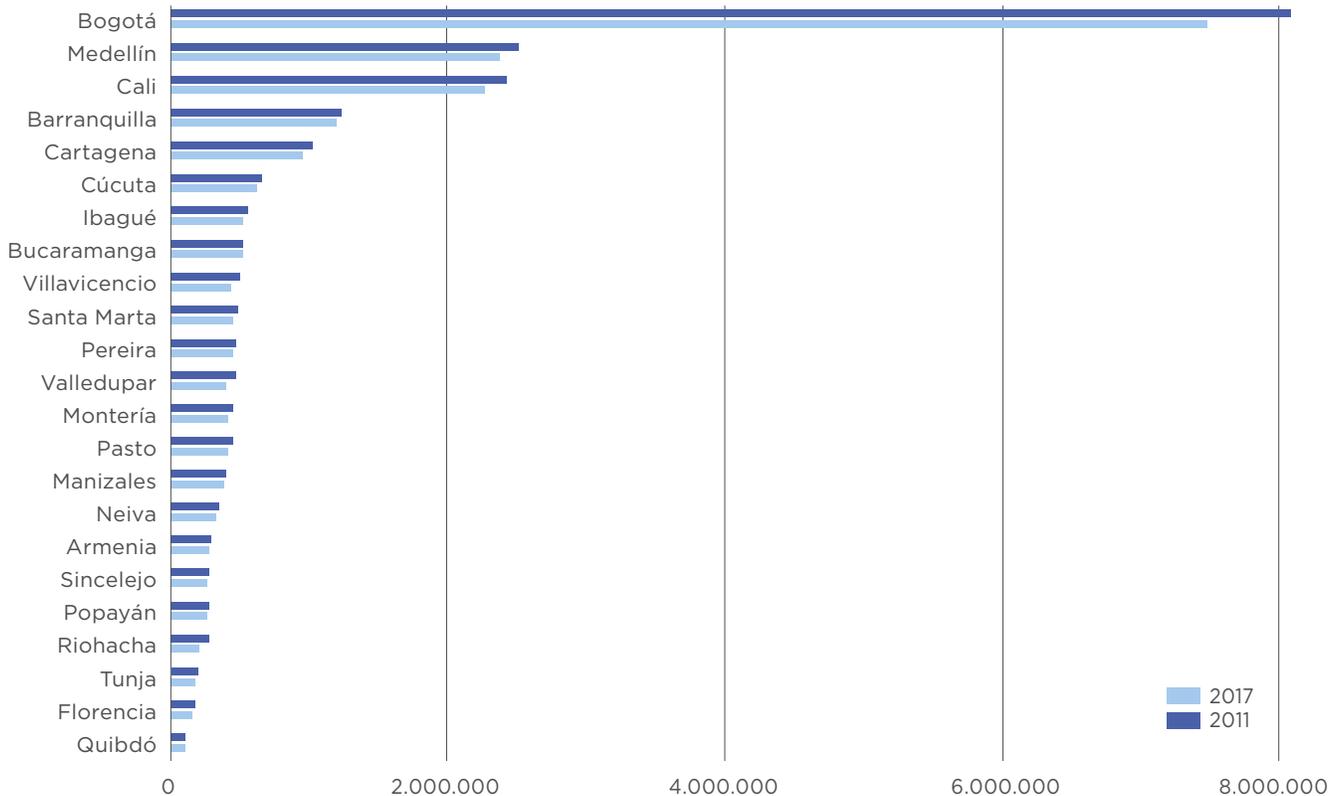
<sup>46</sup> The population in this part of the country is less than 5 percent.

# Overview of Selected Cities

## Population

Comparing the sizes of the 23 selected cities between 2007 and 2017 (see Figure 5.2), some characteristics emerge. First, Bogotá is the largest city, with over 8 million inhabitants. Second, there are at least three additional clusters of cities, with a second group made up of two cities of similar size, Medellín and Cali (about 2.5 million); a third group consisting of Barranquilla and Cartagena (with over 1 million people); and a fourth group made up of the other 19 cities (with less than 1.0 million). As expected, city size in Colombia is closely related to social and economic development. Industrial activity, manufacturing, services, and tourism.

**FIGURE 5.2. POPULATION, 2011 VERSUS 2017**



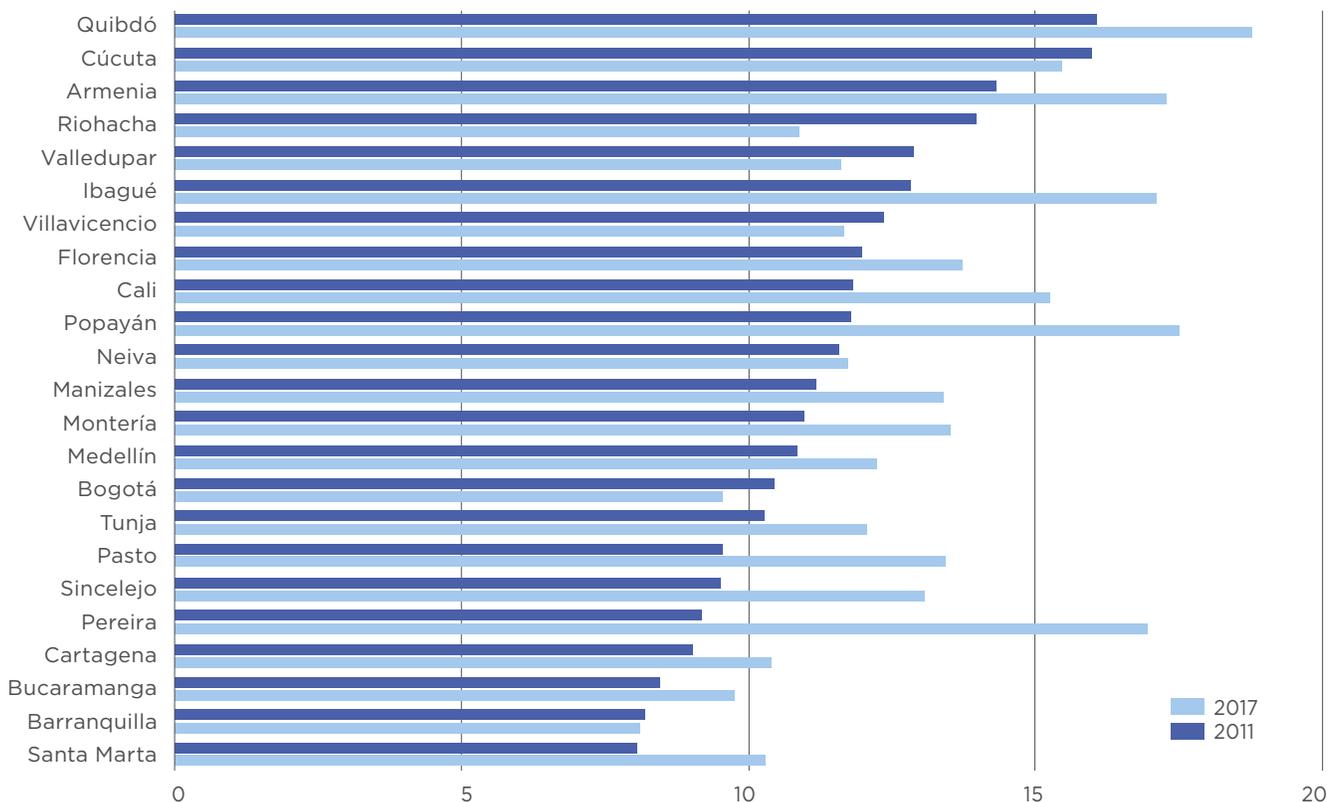
Source: Authors' elaboration based on DANE.

Interregional population evolution in Colombia follows the usual international pattern where demographic transition lags in the poorer regions, in this case the Pacific and Caribbean regions (Romero, 2017). The regions with the highest population variations are not only the poorest (Pacific and Caribbean), nor are the most demographically homogeneous regions the most prosperous (eastern and central).

## Unemployment

In the last decade, unemployment in Colombia has steadily fallen. This has been the pattern in the 23 main cities studied (see Figure 5.3), except in the cases of Barranquilla, Bogota, Cucuta, Riohacha, Valledupar, and Villavicencio. Barranquilla, which has one of the lowest unemployment rates, barely changed between 2011 and 2017. The average for the whole group was about 11.4 percent in 2017.

**FIGURE 5.3. UNEMPLOYMENT RATE, 2011 VERSUS 2017**



Source: Authors' elaboration based on DANE.

Despite the significant reduction in unemployment, there is still much to do to improve the quality of these jobs, since labor informality in the main cities is around 50 percent. This phenomenon is not new in Colombia and is not exclusive to the labor market. Housing informality, which is around 20 percent in the 13 main cities and possibly higher for the total group of sample cities, is a persistent problem in Colombia (Bonet, Pérez, and Ayala, 2016).<sup>47</sup>

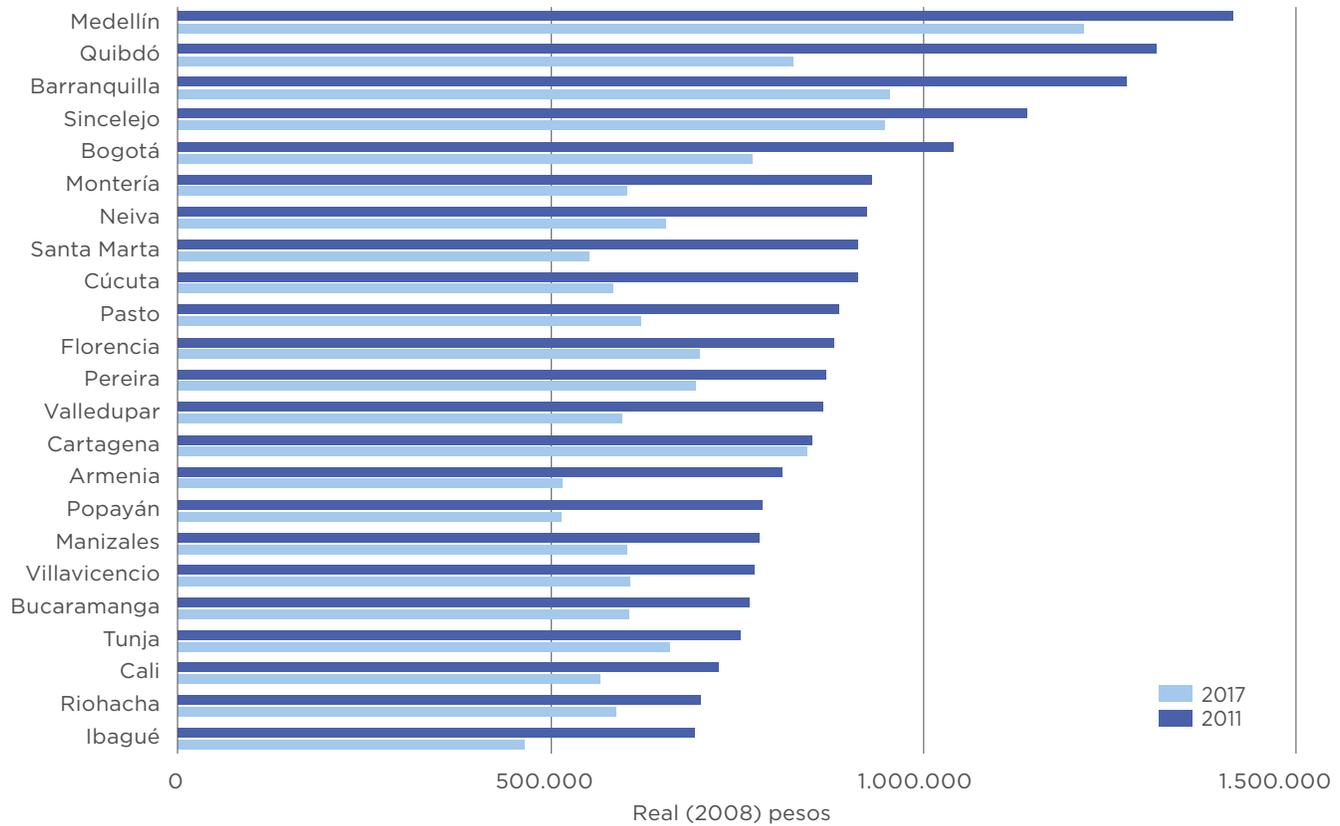
### Expenditures per Capita

The relative size of public expenditures is another central variable that helps to understand the situation facing each city (see Figure 5.4). In this case, public expenditures are similar to public revenues, in terms of both the position each city holds and the amounts per capita. The main reason is that SNGs have limits to their indebtedness (Law 358/1997), limits to the growth of their spending (Law 617/2000), and are bound by fiscal responsibility rules (Law 819/2003).<sup>48</sup> The top five cities are Medellín, Quibdó, Barranquilla, Sincelejo, and Bogotá. Per capita expenditures are between Colombian pesos (COP) 0.7 million and COP 1.4 million, just below the amounts of per capita revenues, which averaged COP 0.9 million in 2017.

47 The authors use characteristics such as inadequate infrastructure, lack of basic services (sanitation and electricity), and irregular/illegal tenancy to define housing informality.

48 For a more detailed explanation on national and subnational fiscal rules, see Lozano et al. (2008).

FIGURE 5.4. EXPENDITURES PER CAPITA, 2011 VERSUS 2017

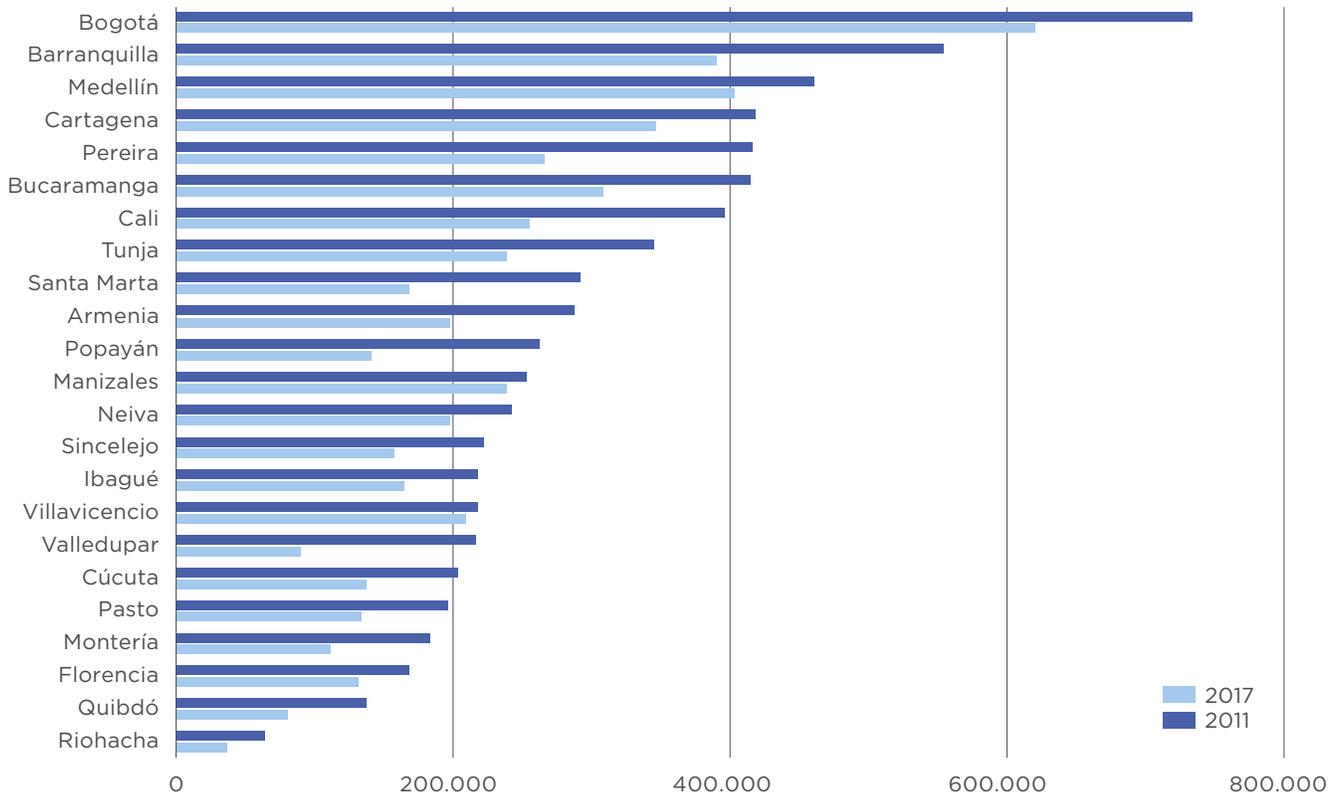


Source: Authors' elaboration based on DANE.

### Taxes per Capita

Taxes per capita captures the capacity and potential autonomy of cities to cover their most immediate expenses. Figure 5.5 shows that, despite the close relationship in terms of the city size, there is still significant heterogeneity across the 23 cities, with an average in 2017 of COP 0.3 million. Comparing cities with the highest and lowest per capita tax collection, Bogota collects 16 times more taxes than Riohacha. Colombia has not only significant overall income inequality but also a high and persistent regional inequality, to the detriment of peripheral cities (Bonet and Meisel, 2001; Galvis and Meisel, 2010). This situation is related to: institutional differences where stronger and more stable cities have the best fiscal and financial results; and the clustering of productive centers in a few regions, making tax bases also spatially concentrated. Particularly in the peripheral Caribbean region, institutional weaknesses is the primary reason for the persistent lag relative to interior regions (Bonilla and Higuera, 2018).

FIGURE 5.5. TAXES PER CAPITA, 2011 VERSUS 2017



Source: Authors' elaboration based on DANE.

Percentile shares are useful to quantify the proportions of fiscal health indicators that go to different groups defined in terms of their relative position in the distribution. Thus, quintiles are used to classify each city in the first, second, third, fourth, or fifth group. Quintiles 1 and 2 were grouped together as “weak/very weak”, quintile 3 as “average”, and quintiles 4 and 5 as “strong/very strong”. To maintain consistency among the whole set of indicators, the following were inverted so that the higher the value of the indicator, the stronger the city’s fiscal health.

Table 5.1 shows that the most populated cities tend to belong to central and eastern regions. This has remained constant in recent years. Results can be divided into cities that have not changed over the years and those where there has been either improvement or deterioration. The cities in the first group, which have remained the same from 2011 and 2017 in terms of income per capita, unemployment, expenditures per capita, and taxes per capita,

are Barranquilla, Bogota, Cali, and Cartagena (except for expenditures per capita). These cities are among the most populous and the richest.

The second group is made up of relatively disadvantaged cities, which since 2011 have not been able to overcome their situation: Quibdo, Riohacha (except for unemployment, which increased), Ibagué (except for taxes per capita, which fell further), Manizales (except for taxes per capita, which fell further) and Cucuta (except for expenditures per capita, which rose). Villavicencio worsened in terms of income per capita, unemployment, expenditures per capita, and taxes per capita, while Pasto and Santa Marta improved in three of the four indicators.

In general, there seems to be a convergence pattern or a catch-up effect. Poorer regions or cities tend to improve their socioeconomic indicators more rapidly than wealthier ones. In this case, cities in the Caribbean and Pacific regions show higher increases in income, expenditures, and taxes per capita and deeper reductions in unemployment, at least in the last few years.

TABLE 5.1. PROFILE INDICATORS - RELATIVE POSITION

REGION	MUNICIPALITY	2011-12				
		POPULATION	INCOME PER CAPITA	UNEMPLOYMENT RATE	EXPENDITURES PER CAPITA	TAXES PER CAPITA
EASTERN	BOGOTÁ	Green	Green	Green	Green	Green
	TUNJA	Red	Green	Yellow	Green	Green
	VILLAVICENCIO	Yellow	Green	Green	Yellow	Green
	CÚCUTA	Green	Red	Red	Red	Red
	BUCARAMANGA	Green	Green	Green	Yellow	Green
CENTRAL	MEDELLÍN	Green	Green	Yellow	Green	Green
	MANIZALES	Red	Red	Yellow	Red	Green
	FLORENCIA	Red	Yellow	Red	Green	Red
	NEIVA	Red	Green	Green	Green	Yellow
	ARMENIA	Red	Red	Red	Red	Yellow
	PEREIRA	Green	Yellow	Red	Green	Green
	IBAGUÉ	Green	Red	Red	Red	Yellow
CARIBBEAN	BARRANQUILLA	Green	Green	Green	Green	Green
	CARTAGENA	Green	Green	Green	Green	Green
	VALLEDUPAR	Yellow	Red	Green	Red	Red
	MONTERÍA	Yellow	Yellow	Red	Yellow	Red

CARIBBEAN	RIOHACHA	Strong/very strong	Strong/very strong	Weak/very weak	Strong/very strong	Strong/very strong
	SANTA MARTA	Weak/very weak	Average	Weak/very weak	Strong/very strong	Average
	SINCELEJO	Strong/very strong	Weak/very weak	Average	Weak/very weak	Strong/very strong
PACIFIC	POPAYÁN	Strong/very strong				
	QUIBDÓ	Strong/very strong	Weak/very weak	Strong/very strong	Weak/very weak	Strong/very strong
	PASTO	Average	Strong/very strong	Strong/very strong	Average	Strong/very strong
	CALI	Weak/very weak	Strong/very strong	Strong/very strong	Strong/very strong	Weak/very weak

Weak/very weak
  Average
  Strong/very strong

REGION	MUNICIPALITY	2017				
		POPULATION	INCOME PER CAPITA	UNEMPLOYMENT RATE	EXPENDITURES PER CAPITA	TAXES PER CAPITA
EASTERN	BOGOTÁ	Weak/very weak	Weak/very weak	Weak/very weak	Weak/very weak	Weak/very weak
	TUNJA	Strong/very strong	Strong/very strong	Weak/very weak	Strong/very strong	Weak/very weak
	VILLAVICENCIO	Weak/very weak	Strong/very strong	Strong/very strong	Strong/very strong	Strong/very strong
	CÚCUTA	Weak/very weak	Strong/very strong	Strong/very strong	Weak/very weak	Strong/very strong
	BUCARAMANGA	Weak/very weak	Average	Weak/very weak	Strong/very strong	Weak/very weak
CENTRAL	MEDELLÍN	Weak/very weak	Weak/very weak	Average	Weak/very weak	Weak/very weak
	MANIZALES	Strong/very strong	Strong/very strong	Average	Strong/very strong	Average
	FLORENCIA	Strong/very strong	Weak/very weak	Strong/very strong	Average	Strong/very strong
	NEIVA	Strong/very strong	Strong/very strong	Weak/very weak	Weak/very weak	Average
	ARMENIA	Strong/very strong	Average	Strong/very strong	Strong/very strong	Weak/very weak
	PEREIRA	Average	Weak/very weak	Weak/very weak	Average	Weak/very weak
	IBAGUÉ	Weak/very weak	Strong/very strong	Strong/very strong	Strong/very strong	Strong/very strong
CARIBBEAN	BARRANQUILLA	Weak/very weak	Weak/very weak	Weak/very weak	Weak/very weak	Weak/very weak
	CARTAGENA	Weak/very weak	Weak/very weak	Weak/very weak	Average	Weak/very weak
	VALLEDUPAR	Average	Strong/very strong	Strong/very strong	Average	Strong/very strong
	MONTERÍA	Average	Weak/very weak	Average	Weak/very weak	Strong/very strong
	RIOHACHA	Strong/very strong	Strong/very strong	Strong/very strong	Strong/very strong	Strong/very strong
	SANTA MARTA	Weak/very weak	Weak/very weak	Weak/very weak	Weak/very weak	Weak/very weak
	SINCELEJO	Strong/very strong	Weak/very weak	Weak/very weak	Weak/very weak	Average
PACIFIC	POPAYÁN	Strong/very strong	Average	Strong/very strong	Strong/very strong	Average
	QUIBDÓ	Strong/very strong	Weak/very weak	Strong/very strong	Weak/very weak	Strong/very strong
	PASTO	Average	Average	Weak/very weak	Weak/very weak	Strong/very strong
	CALI	Weak/very weak	Strong/very strong	Strong/very strong	Strong/very strong	Weak/very weak

Weak/very weak
  Average
  Strong/very strong

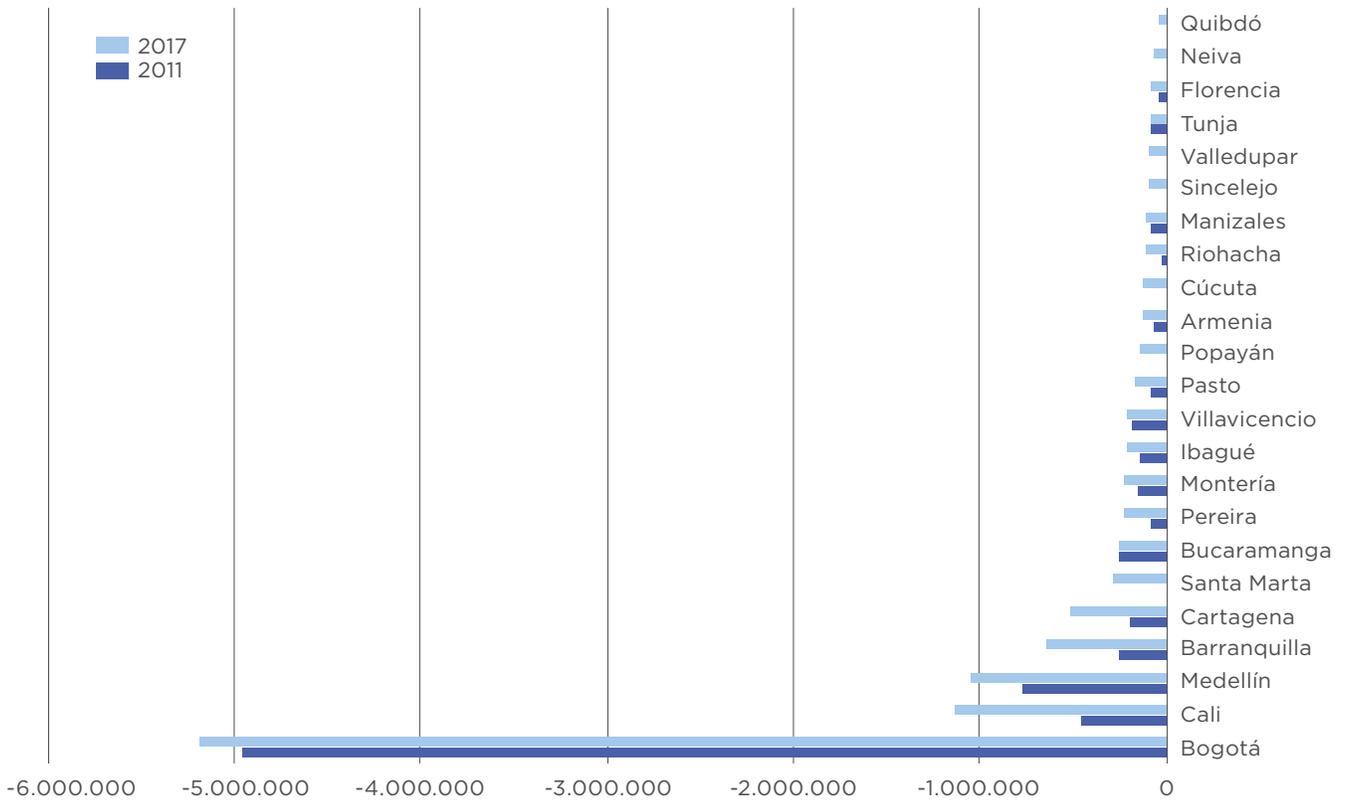
Source: Authors' calculations based on data from DNP, available at: <https://www.dnp.gov.co/>.

# Fiscal Health in Practice

## Financial Circumstances

Operating deficits capture the ability of local governments to cover their most immediate expenses—their short-term fiscal sustainability. Figure 5.6 shows that none of the 23 cities is facing a deficit. Bogotá, Cali, and Medellín have the highest operating surpluses, while Quibdó, Florencia, Sincelejo, and Riohacha are among those with the lowest operating surpluses. With a few exceptions, operating surpluses increased between 2011 and 2017.

FIGURE 5.6. OPERATING DEFICIT, 2011 VERSUS 2017

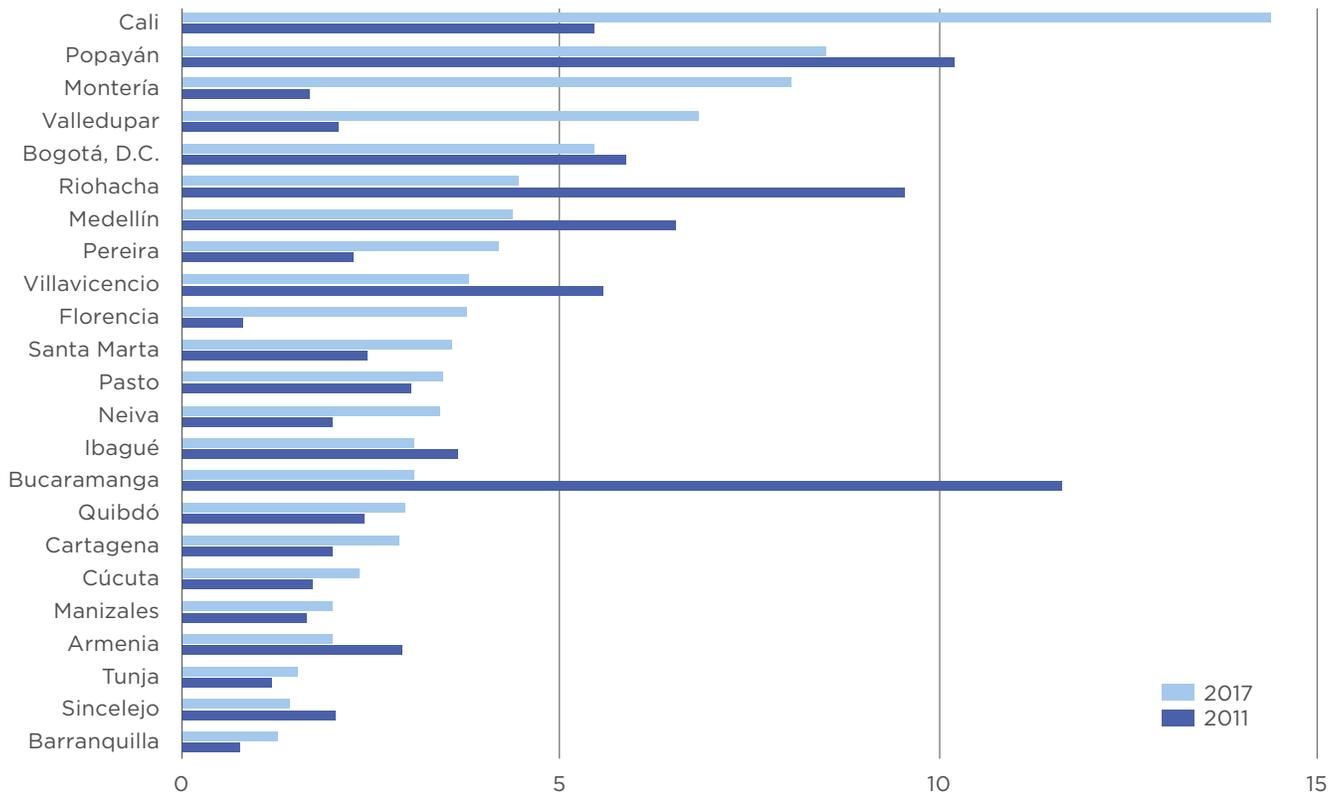


Source: Authors' elaboration based on DANE.

The second financial indicator, net financial assets (see Figure 5.7), measures the ratio of financial assets to financial liabilities. Positive balances

would suggest that those cities are better able to meet their short-term obligations. Nevertheless, results must be interpreted with caution since lower relative ratios do not necessarily imply lower financial capacity but possibly an appropriate short-term budget programming strategy. Cali and Barranquilla, which showed high operating deficits, are in opposite positions with respect to net financial assets. These results might suggest that Cali uses its surpluses for longer-term purposes, while Barranquilla uses them only to cover short-term imbalances, but ratios in both cities are positive.

**FIGURE 5.7. NET FINANCIAL ASSETS, 2011 VERSUS 2017**



Source: Authors' elaboration based on DANE.

Total variations between 2011 and 2017 for both indicators show positive behavior in the cities analyzed. All of them show operating surpluses, and the majority also exhibit real increases in both operating surpluses and net financial assets. Bogota, Cali, and Medellin not only have the best financial performance but also maintained them for years. Barranquilla and

Cartagena, two of the most populated cities with more favorable economic conditions, show good performance in keeping their operating deficit low and have low relative levels of liquidity.

Other cities that kept their positions in the ranking, but in the lower range of performance, are Manizales, Sincelejo, and Tunja. The remaining cities had variations over the years, with the exception of Pereira, which rose from middle to the upper end of the ranking.

TABLE 5.2. FINANCIAL - RELATIVE POSITION, 2011-12 VERSUS 2017

REGION	MUNICIPALITY	2011-12		2017	
		OPERATING DEFICIT	NET FINANCIAL ASSETS	OPERATING DEFICIT	NET FINANCIAL ASSETS
EASTERN	BOGOTÁ	Weak/very weak	Weak/very weak	Weak/very weak	Weak/very weak
	TUNJA	Strong/very strong	Strong/very strong	Strong/very strong	Strong/very strong
	VILLAVICENCIO	Weak/very weak	Weak/very weak	Average	Weak/very weak
	CÚCUTA	Average	Strong/very strong	Strong/very strong	Strong/very strong
	BUCARAMANGA	Weak/very weak	Weak/very weak	Weak/very weak	Strong/very strong
CENTRAL	MEDELLÍN	Weak/very weak	Weak/very weak	Weak/very weak	Weak/very weak
	MANIZALES	Strong/very strong	Strong/very strong	Strong/very strong	Strong/very strong
	FLORENCIA	Strong/very strong	Strong/very strong	Strong/very strong	Weak/very weak
	NEIVA	Strong/very strong	Strong/very strong	Strong/very strong	Average
	ARMENIA	Strong/very strong	Weak/very weak	Strong/very strong	Strong/very strong
	PEREIRA	Average	Average	Weak/very weak	Weak/very weak
	IBAGUÉ	Average	Weak/very weak	Average	Average
	BARRANQUILLA	Weak/very weak	Strong/very strong	Weak/very weak	Strong/very strong
CARIBBEAN	CARTAGENA	Weak/very weak	Strong/very strong	Weak/very weak	Strong/very strong
	VALLEDUPAR	Strong/very strong	Average	Strong/very strong	Weak/very weak
	MONTERÍA	Weak/very weak	Strong/very strong	Weak/very weak	Weak/very weak
	RIOHACHA	-	Weak/very weak	Strong/very strong	Weak/very weak
	SANTA MARTA	-	Average	Weak/very weak	Average
	SINCELEJO	Strong/very strong	Strong/very strong	Strong/very strong	Strong/very strong
	POPAYÁN	-	Weak/very weak	Average	Weak/very weak
PACIFIC	QUIBDÓ	Strong/very strong	Average	Strong/very strong	Strong/very strong
	PASTO	Average	Weak/very weak	Average	Average
	CALI	Weak/very weak	Weak/very weak	Weak/very weak	Weak/very weak

Source: Authors' elaboration based on data from DANE, available at <https://www.dane.gov.co/index.php>.

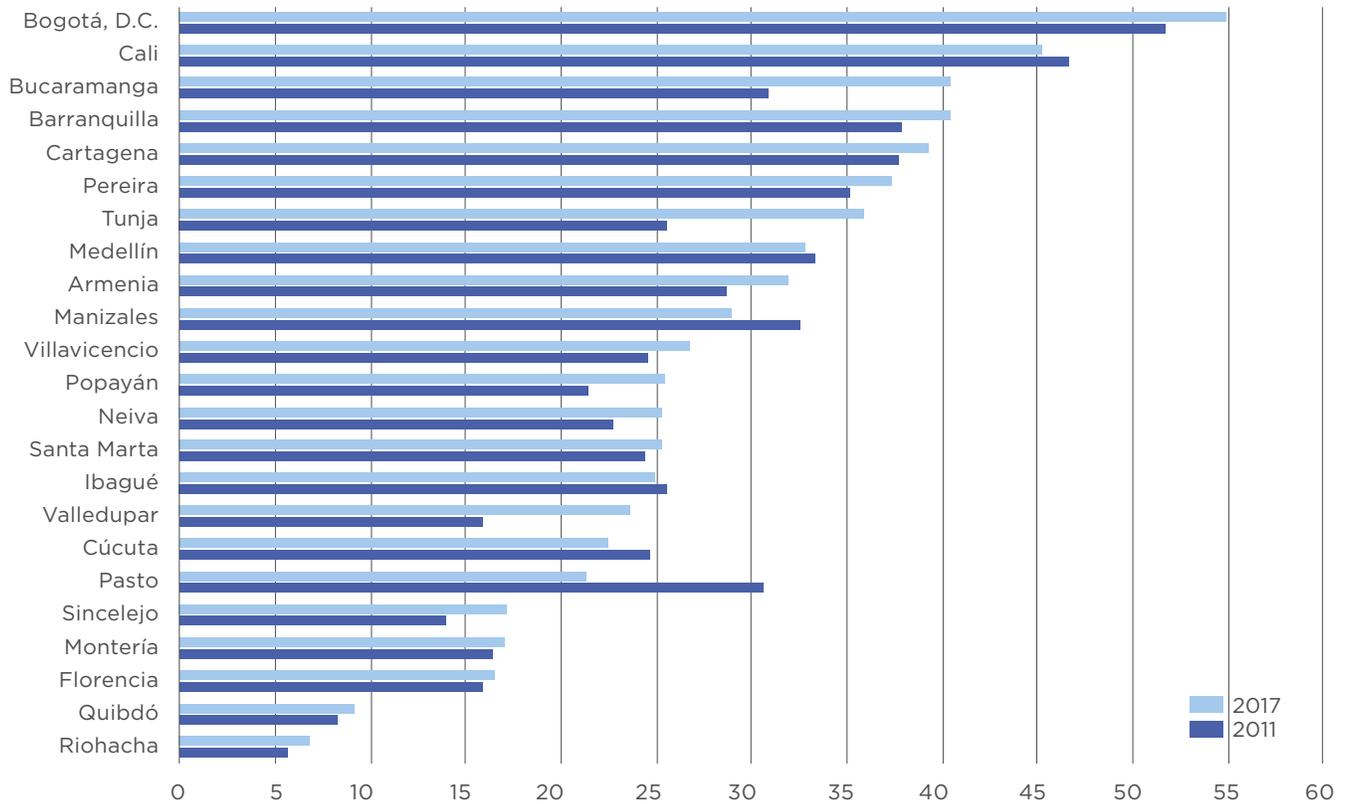
Regionally, there seems to be a particular pattern. Operating surpluses and net financial assets have, on average, increased more in regions that are lagging behind (Pacific and Caribbean) than in the richest regions (eastern and central), signaling some sort of convergence.

### Taxes and Revenues

The third set of financial circumstances has to do with the potential capacity of the cities to raise their own resources and the extent to which they are able to rely on these revenues. On average for the whole set of municipalities in Colombia, transfers (national and royalties) represent over 60 percent of total revenues (Bonet, Pérez, and Mestre, 2018). In fact, both transfers and own-source revenues have grown significantly in recent decades (Bonet, Pérez, and Ricculi, 2017). The deepening of decentralization in Colombia at the end of the 1990s brought about several reforms to keep the finances of SNGs on track. One of those was the strengthening of own-source revenues (Law 488/1998 and Law 788/2003) by offering new tax and non-tax collection mechanisms (del Valle and Galindo, 2010).

Figure 5.8 reveals that, on average, own-source revenues represented 26.2 percent of total revenues in the sample cities and, as expected, the richest cities are the most reliant on their own resources. The poorest cities are also the weakest and the most dependent on national transfers. Quibdo and Riohacha rely on national transfers for over 90 percent of their revenues.

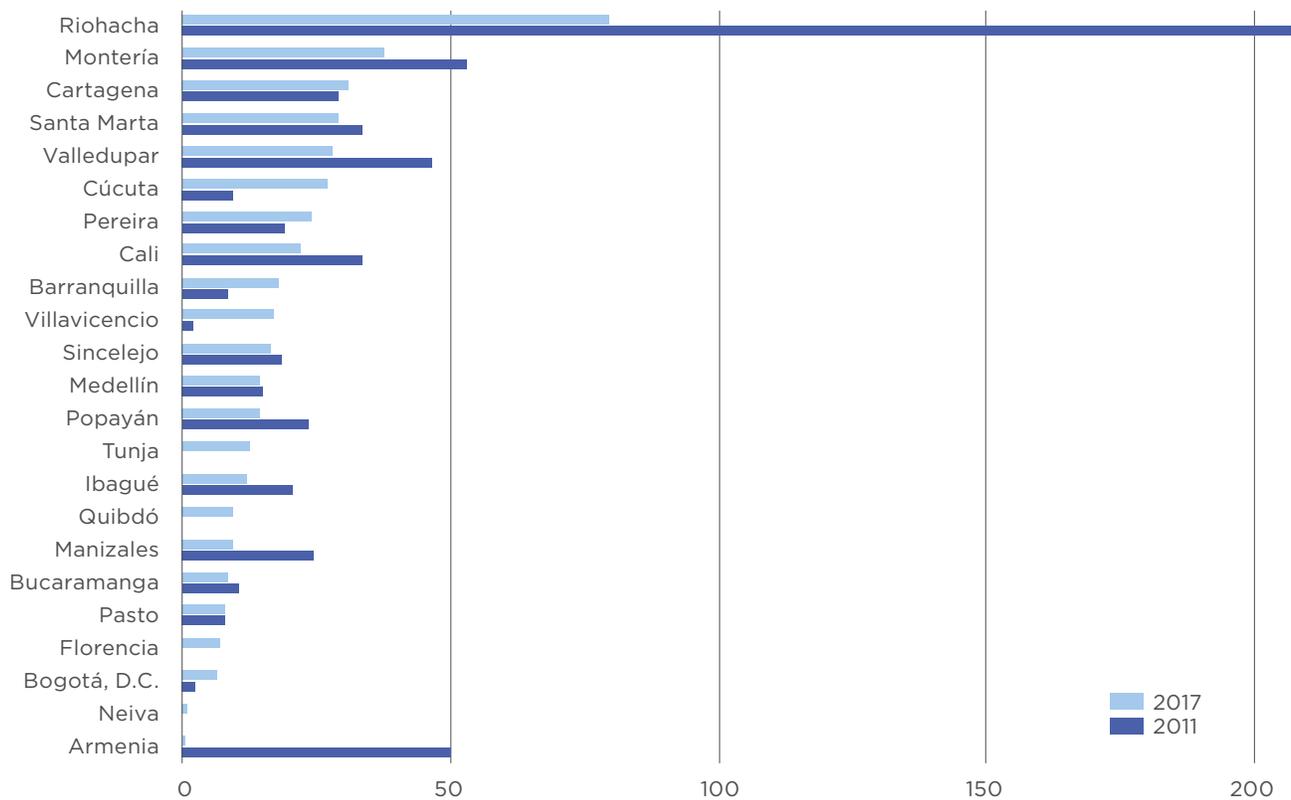
FIGURE 5.8. OWN-SOURCE REVENUES RELATIVE TO TOTAL REVENUES, 2011 VERSUS 2017



Source: Authors' elaboration based on DANE.

The other indicator, taxes receivable relative to taxes levied, shows no particular pattern distinguishing rich and poor cities. In some sense this measure might be revealing institutional and administrative strengths or weaknesses alike across large cities. For example, Figure 5.9 shows that among the cities with the lowest proportion of taxes receivable are Bogotá (one of the richest) and Florencia (one of the poorest).

FIGURE 5.9. TAXES RECEIVABLE RELATIVE TO TAXES LEVIED, 2011 VERSUS 2017



Source: Authors' elaboration based on DANE.

There are two opposite patterns in tax and revenue indicators, with mostly positive real increases of own-source revenues compared to total revenues, meaning lower dependence on transfers. On the other hand, nearly all of the cities exhibited less capacity to collect taxes levied. Among the few showing positive figures are Bogotá, Villavicencio, Cucuta, and Barranquilla, which seem to have strengthened their tax collection capacity between 2011 and 2017.

Bogotá remained at the top of list in terms of revenue effort (see Table 5.3), along with Bucaramanga, Manizales, and Armenia. Cartagena and Cali performed well in terms of own-source revenues and poorly on their capacity to collect taxes. The Caribbean coast stood out this time by having four out of its seven capitals classified between the middle and the lowest part of the rankings: Valledupar, Montería, Riohacha, and Sincelejo. This situation is not new for these cities, since their results did not change

compared with 2011 with respect to low reliance on own-source revenues and potential future cash-flow problems.

TABLE 5.3. TAX AND REVENUES - RELATIVE POSITION, 2011-12 VERSUS 2017

REGION	MUNICIPALITY	2011-12		2017	
		OWN-SOURCE REVENUE RELATIVE TO TOTAL REVENUE	TAXES RECEIVABLE RELATIVE TO TAXES LEVIED	OWN-SOURCE REVENUE RELATIVE TO TOTAL REVENUE	TAXES RECEIVABLE RELATIVE TO TAXES LEVIED
EASTERN	BOGOTÁ	Weak/very weak	Weak/very weak	Weak/very weak	Weak/very weak
	TUNJA	Average	Average	Weak/very weak	Average
	VILLAVICENCIO	Average	Weak/very weak	Average	Strong/very strong
	CÚCUTA	Average	Strong/very strong	Strong/very strong	Strong/very strong
	BUCARAMANGA	Weak/very weak	Weak/very weak	Weak/very weak	Weak/very weak
CENTRAL	MEDELLÍN	Weak/very weak	Average	Weak/very weak	Average
	MANIZALES	Weak/very weak	Weak/very weak	Weak/very weak	Weak/very weak
	FLORENCIA	Strong/very strong	Average	Strong/very strong	Weak/very weak
	NEIVA	Strong/very strong	-	Average	Weak/very weak
	ARMENIA	Weak/very weak	Weak/very weak	Weak/very weak	Weak/very weak
	PEREIRA	Weak/very weak	Weak/very weak	Weak/very weak	Strong/very strong
	IBAGUÉ	Average	Strong/very strong	Strong/very strong	Weak/very weak
CARIBBEAN	BARRANQUILLA	Weak/very weak	Weak/very weak	Weak/very weak	Strong/very strong
	CARTAGENA	Weak/very weak	Strong/very strong	Weak/very weak	Strong/very strong
	VALLEDUPAR	Strong/very strong	Strong/very strong	Strong/very strong	Strong/very strong
	MONTERÍA	Strong/very strong	Strong/very strong	Strong/very strong	Strong/very strong
	RIOHACHA	Strong/very strong	Strong/very strong	Strong/very strong	Strong/very strong
	SANTA MARTA	Strong/very strong	Strong/very strong	Weak/very weak	Strong/very strong
	SINCELEJO	Strong/very strong	Weak/very weak	Strong/very strong	Average
PACIFIC	POPAYÁN	Strong/very strong	Strong/very strong	Weak/very weak	Average
	QUIBDÓ	Strong/very strong	-	Strong/very strong	Weak/very weak
	PASTO	Weak/very weak	Weak/very weak	Strong/very strong	Weak/very weak
	CALI	Weak/very weak	Strong/very strong	Weak/very weak	Strong/very strong

■ Weak/very weak    ■ Average    ■ Strong/very strong

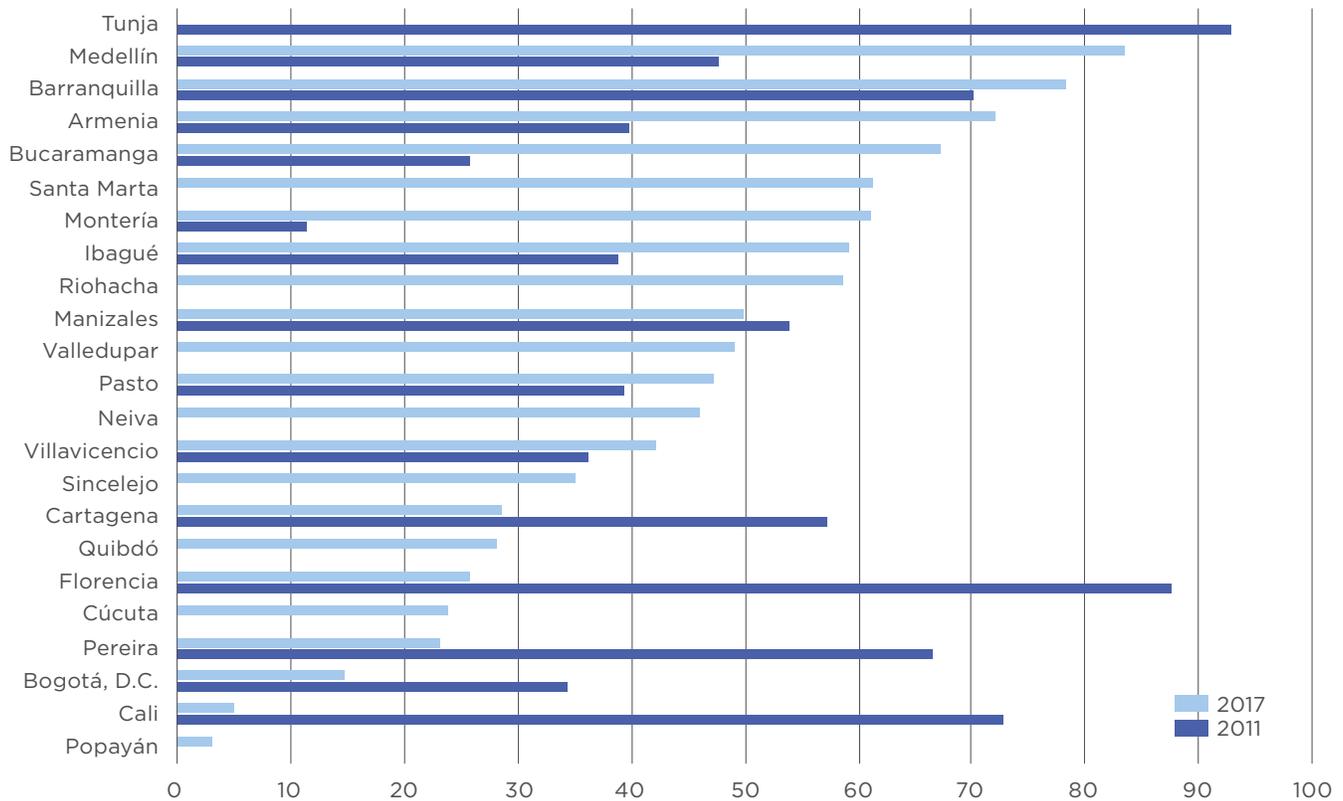
Source: Authors' elaboration based on data from DANE, available at <https://www.dane.gov.co/index.php>.

## Debt

Indicators that measure debt-to-tax ratio and debt charges relative to own-source revenues are used to capture cities' capacity to repay debt with own-source revenues. As mentioned before, decentralization reforms brought about a series of changes that helped SNGs (departments and municipalities) manage their finances and fiscal situations, indebtedness being one of the most important (Bonet, Pérez, and Ayala, 2016). These include imposing limits on their indebtedness capacity and regulation of subnational credits (Law 358/1997), carrying out measures to rationalize the spending (Law 617/2000), and strategies to restructure indebtedness of territorial and regional entities (Law 819/2003).

With respect to debt-to-tax ratio (see Figure 5.10), the first general observation is that in none of the cities' debt exceeds their tax collection capacity. Second, when considering both 2011 and 2017, no particular pattern emerges among poor and rich cities. For example, in 2017 while Bogota and Cali were at the bottom with the lowest debt-to-tax ratio, two other rich cities, such as Medellin and Barranquilla, were at the top.

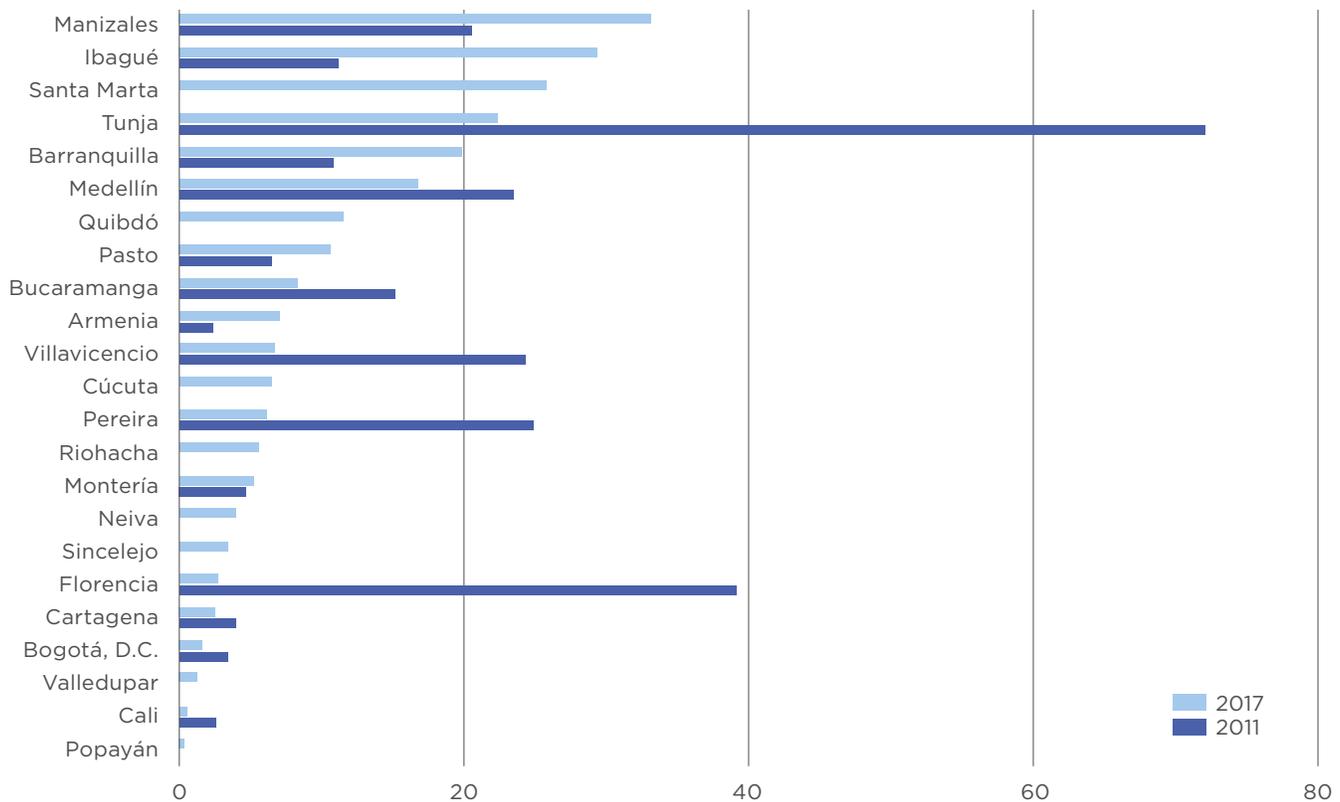
FIGURE 5.10. DEBT-TO-TAX RATIO, 2011 VERSUS 2017



Source: Authors' elaboration based on DANE.

For the second indicator, debt charges relative to own-source revenue, ratios are even lower than debt-to-tax ratios, with almost all of them below 30 percent in 2017. As with the other debt indicator, in this case there is no evident relationship between the socioeconomic condition of the cities and debt charge ratios, or any particular evidence of generalized increases or declines. Trends in debt charges relative to own-source revenues show generalized lower levels (with an average of 8.4 percent in 2017), with a mix of upward and downward trends between the richest and the poorest cities.

FIGURE 5.11. DEBT CHARGES RELATIVE TO OWN-SOURCE REVENUE, 2011 VERSUS 2017



Source: Authors' elaboration based on DANE.

A particular characteristic for both debt ratios is that indebtedness in general seems to be under control, most likely because of the aforementioned implementation of fiscal responsibility legislation. However, there are nuances that can be described briefly. Among the cities that have shown persistently lower relative positions between 2011 and 2017 are Bucaramanga and Medellín. These two middle to high-income cities reveal that fiscal sustainability has worsened since 2011, moving from average to weak/very weak relative to the other cities studied. Moreover, their weakness with respect to debt repayment capacity using their own resources is persistent. Debt indicators in Manizales and Barranquilla, have fallen to the lower quintiles, and Ibagué fell from strong/very strong in 2011 to weak/very weak in 2017.

TABLE 5.4. DEBT - RELATIVE POSITION, 2012 VERSUS 2017

REGION	MUNICIPALITY	2012		2017	
		DEBT TO TAX RATIO	DEBT CHARGES RELATIVE TO OWN-SOURCE REVENUE	DEBT TO TAX RATIO	DEBT CHARGES RELATIVE TO OWN-SOURCE REVENUE
EASTERN	BOGOTÁ	Weak/very weak	Weak/very weak	Weak/very weak	Weak/very weak
	TUNJA	Strong/very strong	Strong/very strong	Weak/very weak	Strong/very strong
	VILLAVICENCIO	Weak/very weak	Strong/very strong	Average	Average
	CÚCUTA	Weak/very weak	Weak/very weak	Weak/very weak	Average
	BUCARAMANGA	Average	Strong/very strong	Strong/very strong	Strong/very strong
CENTRAL	MEDELLÍN	Average	Strong/very strong	Strong/very strong	Strong/very strong
	MANIZALES	Strong/very strong	Average	Strong/very strong	Strong/very strong
	FLORENCIA	Strong/very strong	Strong/very strong	Weak/very weak	Weak/very weak
	NEIVA	Weak/very weak	Average	Average	Weak/very weak
	ARMENIA	Weak/very weak	Strong/very strong	Strong/very strong	Strong/very strong
	PEREIRA	Strong/very strong	Strong/very strong	Weak/very weak	Average
	IBAGUÉ	Weak/very weak	Weak/very weak	Strong/very strong	Strong/very strong
CARIBBEAN	BARRANQUILLA	Strong/very strong	Weak/very weak	Strong/very strong	Strong/very strong
	CARTAGENA	Average	Average	Weak/very weak	Weak/very weak
	VALLEDUPAR	Strong/very strong	Strong/very strong	Strong/very strong	Weak/very weak
	MONTERÍA	Weak/very weak	Weak/very weak	Strong/very strong	Weak/very weak
	RIOHACHA	-	-	Strong/very strong	Average
	SANTA MARTA	-	-	Strong/very strong	Strong/very strong
	SINCELEJO	Strong/very strong	Weak/very weak	Average	Weak/very weak
PACIFIC	POPAYÁN	-	-	Weak/very weak	Weak/very weak
	QUIBDÓ	Average	-	Weak/very weak	Strong/very strong
	PASTO	Weak/very weak	Average	Average	Strong/very strong
	CALI	Strong/very strong	Weak/very weak	Weak/very weak	Weak/very weak

■ Weak/very weak   
■ Average   
■ Strong/very strong

Source: Authors' elaboration based on data from DANE, available at <https://www.dane.gov.co/index.php>.

On the other hand, cities like Florencia (moved from bottom to top) and Cartagena (moved from middle to top) improved their debt management. Other cities, such as Cali, Pereira, and Tunja, improved on some debt-related measures.

The two regions that lag behind—the Pacific and Caribbean regions—show particular differences. On the one hand, most of the Caribbean cities are

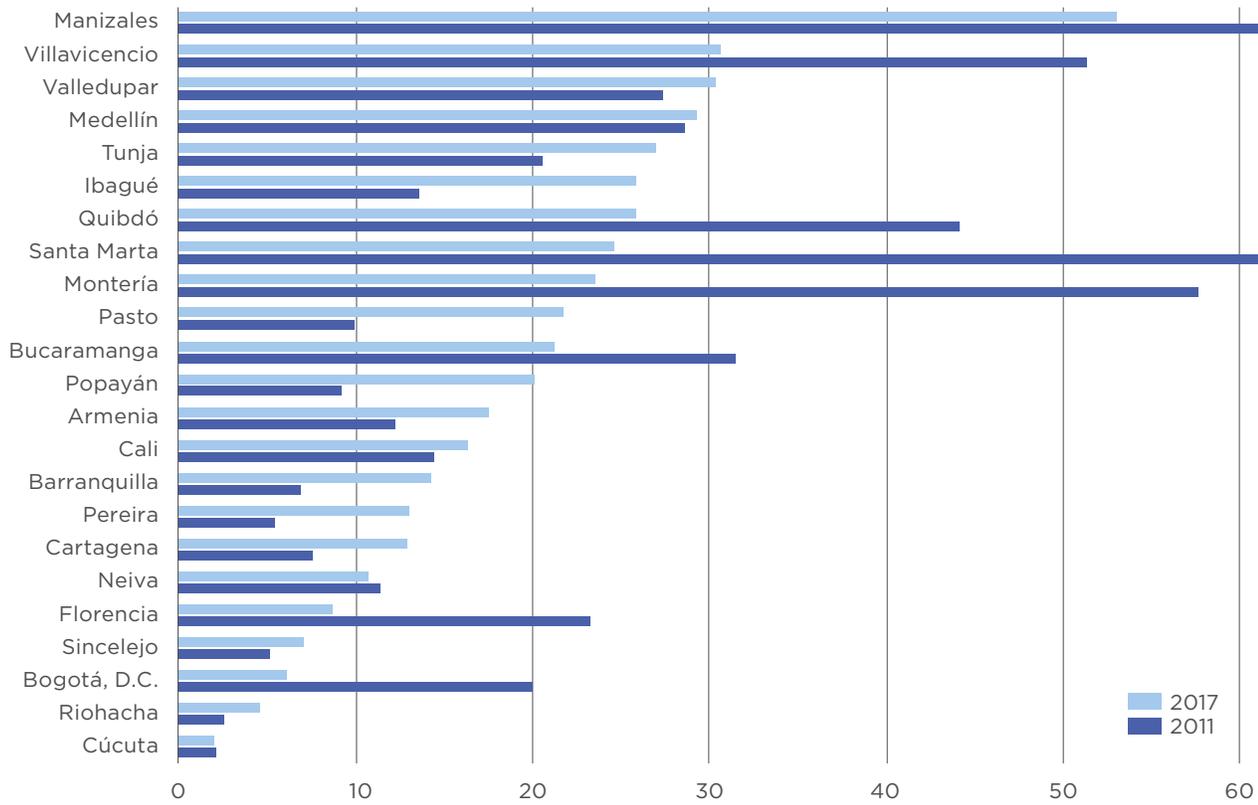
relatively disadvantaged in terms of fiscal sustainability (debt-to-tax ratio), while they perform well with respect to debt repayment. In the Pacific region, on the other hand, cities appear to be fiscally sustainable but debt repayment ability is weakening.

### Infrastructure

The final two measures of fiscal health are related to infrastructure, particularly related to cities' asset consumption. These measures illuminate the degree to which cities are paying attention to the maintenance and repair of their physical assets by investing in them and preserving their value. The first indicator is the asset consumption ratio (see Figure 5.12), which measures the percentage of a cities' assets that need repair. The higher the ratio, the lower the city's capability to repair and maintain their physical assets. The results show improvement between 2011 and 2017. In 2017, with the exception of Manizales (53 percent), the rest of the cities were all below 30 percent, with a general average around 18 percent.

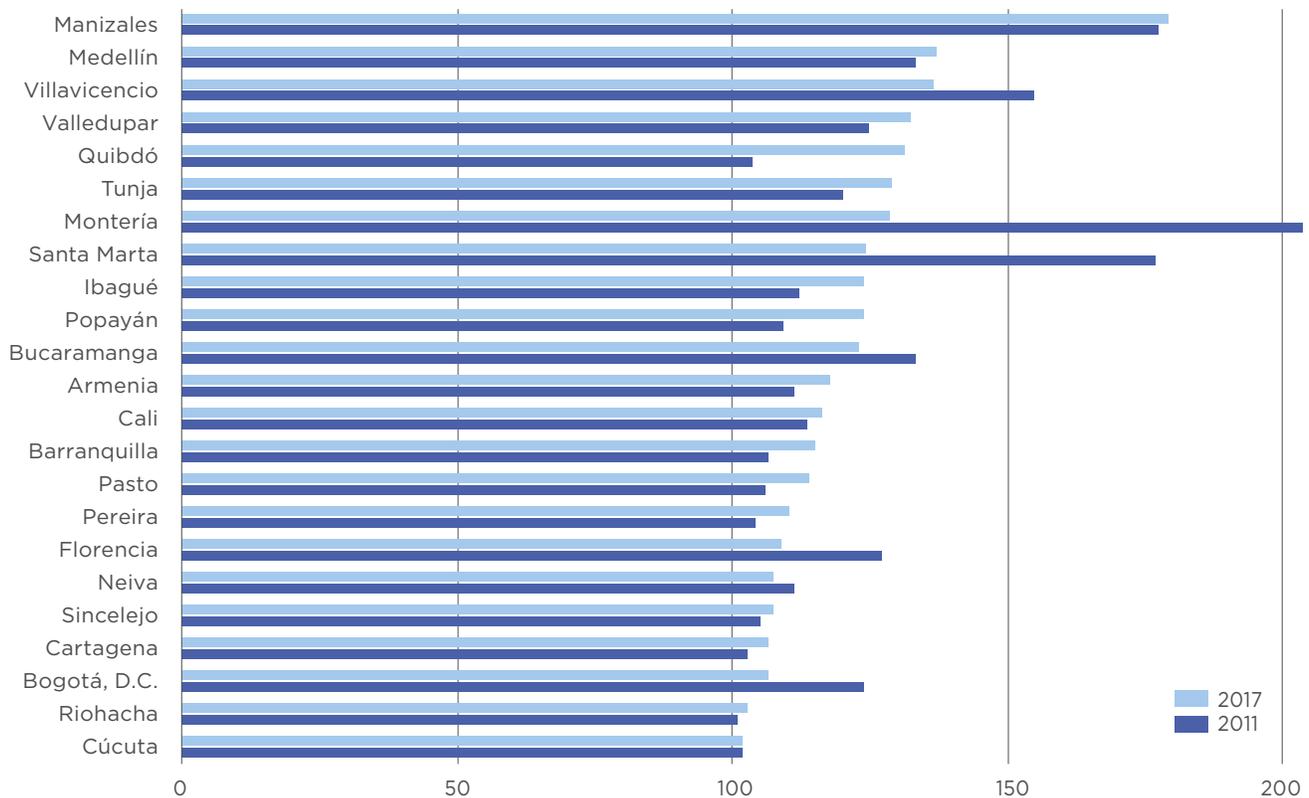
The second indicator is the extent of investment in capital assets (see Figure 5.13). It is a ratio comparing the original cost of the assets and the original cost minus accumulated depreciation. In this case, by construction, the closer to 100 percent, the higher the capacity of the city to preserve the value of its assets. Values over 100 percent indicate that cities are moving away from the value of their assets, or that the effort they are making to preserve asset values is not sufficient. In this case, with few exceptions (Manizales, Monteria, Santa Marta, and Villavicencio), the cities show ratios below 150 percent, in particular in 2017 where the average was 124.6 percent. The only city that still faces very low relative capacity to preserve the value of its assets is Manizales (179.1 percent).

FIGURE 5.12. ASSET/CONSUMPTION RATIO, 2011 VERSUS 2017



Source: Authors' elaboration based on data from DANE, available at <https://www.dane.gov.co/index.php>.

FIGURE 5.13. EXTENT OF INVESTMENT IN CAPITAL ASSETS, 2011 VERSUS 2017



Source: Authors' elaboration based on DANE.

During the period, it is possible to see a higher dispersion in asset consumption ratios, with values as low as 2.3 percent in Cucuta or 6.1 percent in Bogota, and as high as 53 percent in Manizales. The extent of investment in capital assets increased in 15 out of the 23 cities, with Quibdo (the poorest city) showing the highest increase between 2011 and 2017 (26.3 percent), meaning that the value of the cities' assets has fallen. On the other hand, Montería showed the highest reduction in the period (-37 percent).

A systematic difference was found between one of the richest regions (eastern) and one of the poorest (Pacific) where, with the exception of Tunja, the first region showed reductions in both the asset consumption ratio and the extent of investment in capital assets, improving the maintaining and repairing of their physical assets. Cities belonging to the Pacific region (except for asset consumption in Quibdo) increased their ratios, to the detriment of their assets, by increasing the percentage of assets to be repaired and reducing their capacity to preserve the value of their assets.

Over time, five cities managed to remain within the strong/very strong quintile group: Cucuta, Pereira, Cartagena, Riohacha, and Sincelejo, the latter three belonging to the Caribbean region. At the other ender of the spectrum is the group of cities with the weakest infrastructure management, which have also been at the bottom of the ranking in the last several years: Manizales, Medellin, Monteria, Santa Marta, Tunja, Valledupar, and Villavicencio.

TABLE 5.5. INFRASTRUCTURE - RELATIVE RANKINGS, 2011-12 VERSUS 2017

REGION	MUNICIPALITY	2011-12		2017	
		ASSET CONSUMPTION RATIO	EXTENT OF INVESTMENT IN CAPITAL ASSETS	ASSET CONSUMPTION RATIO	EXTENT OF INVESTMENT IN CAPITAL ASSETS
EASTERN	BOGOTÁ	Strong/very strong	Strong/very strong	Strong/very strong	Strong/very strong
	TUNJA	Strong/very strong	Strong/very strong	Strong/very strong	Strong/very strong
	VILLAVICENCIO	Strong/very strong	Strong/very strong	Strong/very strong	Strong/very strong
	CÚCUTA	Weak/very weak	Weak/very weak	Weak/very weak	Weak/very weak
	BUCARAMANGA	Strong/very strong	Strong/very strong	Average	Average
CENTRAL	MEDELLÍN	Strong/very strong	Strong/very strong	Strong/very strong	Strong/very strong
	MANIZALES	Strong/very strong	Strong/very strong	Strong/very strong	Strong/very strong
	FLORENCIA	Strong/very strong	Strong/very strong	Weak/very weak	Weak/very weak
	NEIVA	Weak/very weak	Average	Weak/very weak	Weak/very weak
	ARMENIA	Average	Average	Average	Average
	PEREIRA	Weak/very weak	Weak/very weak	Weak/very weak	Weak/very weak
	IBAGUÉ	Average	Average	Strong/very strong	Strong/very strong
CARIBBEAN	BARRANQUILLA	Weak/very weak	Weak/very weak	Weak/very weak	Average
	CARTAGENA	Weak/very weak	Weak/very weak	Weak/very weak	Weak/very weak
	VALLEDUPAR	Strong/very strong	Strong/very strong	Strong/very strong	Strong/very strong
	MONTERÍA	Strong/very strong	Strong/very strong	Strong/very strong	Strong/very strong
	RIOHACHA	Weak/very weak	Weak/very weak	Weak/very weak	Weak/very weak
	SANTA MARTA	Strong/very strong	Strong/very strong	Strong/very strong	Strong/very strong
	SINCELEJO	Weak/very weak	Weak/very weak	Weak/very weak	Weak/very weak
PACIFIC	POPAYÁN	Weak/very weak	Weak/very weak	Average	Strong/very strong
	QUIBDÓ	Strong/very strong	Weak/very weak	Strong/very strong	Strong/very strong
	PASTO	Weak/very weak	Weak/very weak	Strong/very strong	Weak/very weak
	CALI	Average	Average	Average	Average

■ Weak/very weak    
■ Average    
■ Strong/very strong

Source: Authors' elaboration based on data from DANE, available at <https://www.dane.gov.co/index.php>.

Among the cities that experienced significant changes in both infrastructure indicators, Bogota and Florencia, one of the richest and one of the poorest cities in Colombia, did well in improving their infrastructure's fiscal health. Both of them moved through the lowest/middle ranking to the top. The opposite occurred for Ibaguè and Popayan, which let the depreciation and amortization increase, increasing the percentage of assets to be amortized and lowering investment in capital assets.

## How healthy are the main cities in Colombia?

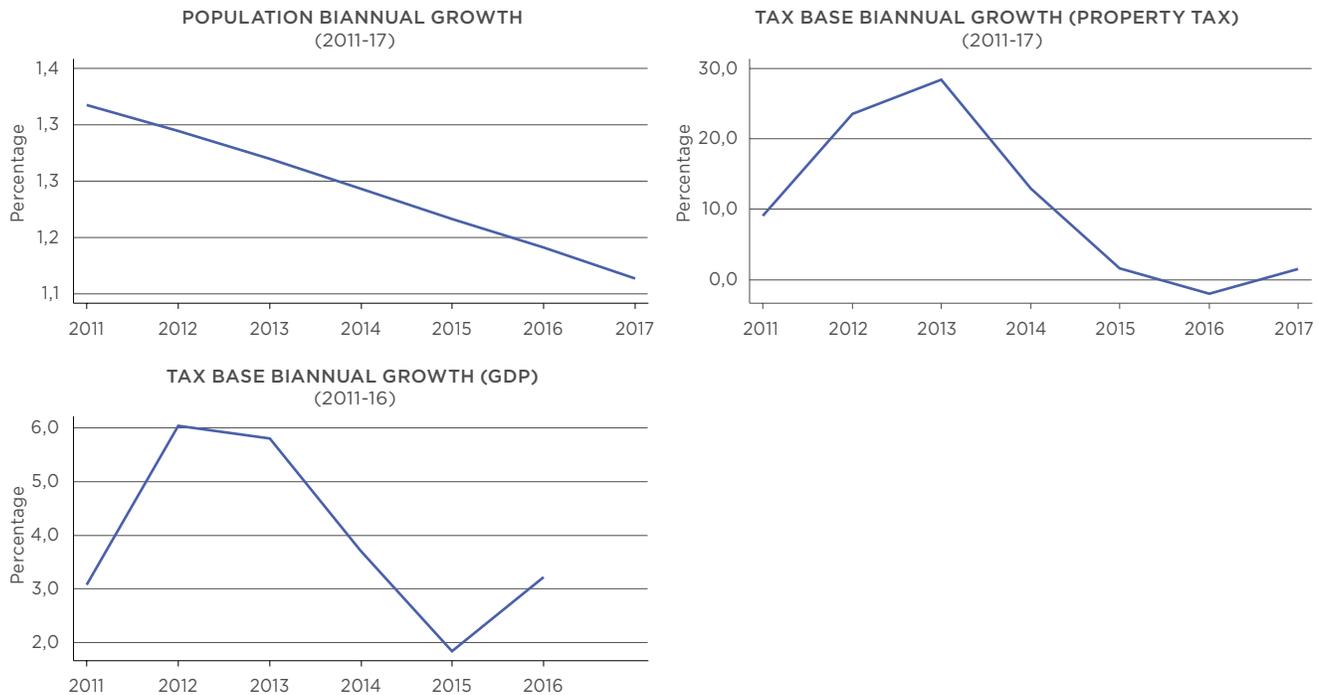
To close a comprehensive evaluation of fiscal health in Colombia, this section presents a more general aggregated analysis. For this purpose, the yearly averages for the 23 cities were computed for each indicator, revealing general patterns over time as well as projections about the cities' fiscal health.

Figure 5.14 shows the first dimension (external) where the three indicators have a clear downward trend over the whole period. Nevertheless, three periods can be identified in the indicators of tax base growth. First, between 2012 and 2013, there was a steep increase due to significant increases in cadastral appraisals and a positive economic performance of the firms.<sup>49</sup> Then the country, as an oil producer, faced a difficult economic situation when the international oil price fell sharply, from US\$104.0 per barrel in 2013 to US\$50.8 in 2015. Nevertheless, despite this shock and following appropriate economic policy management, and with a medium and long-term perspective of an oil price near current figures, the economy began to recover in recent years, with economic growth expected to rebound (IMF, 2018). From these standpoints and, given that Colombia has historically been seen as a country with steady long-term economic growth with an adequately managed macroeconomic policy (World Bank, 1989; Thorp, 1991), there is a positive balance and prospects in terms of the cities' ability to accomplish future financial obligations.

49 Cadastral appraisals are a proxy for the property tax base, and economic performance is proxied by a pseudo GDP that considers only the dynamics of the industry and commerce tax (ICA).

**FIGURE 5.14. EXTERNAL INDICATORS, 2011-17**

(annual average of 23 cities)



Source: Authors' elaboration based on the formulario único territorial (FUT) of the Consolidador de Hacienda e Información Pública (CHIP), available at: [https://www.chip.gov.co/schip\\_rt/index.jsf](https://www.chip.gov.co/schip_rt/index.jsf).

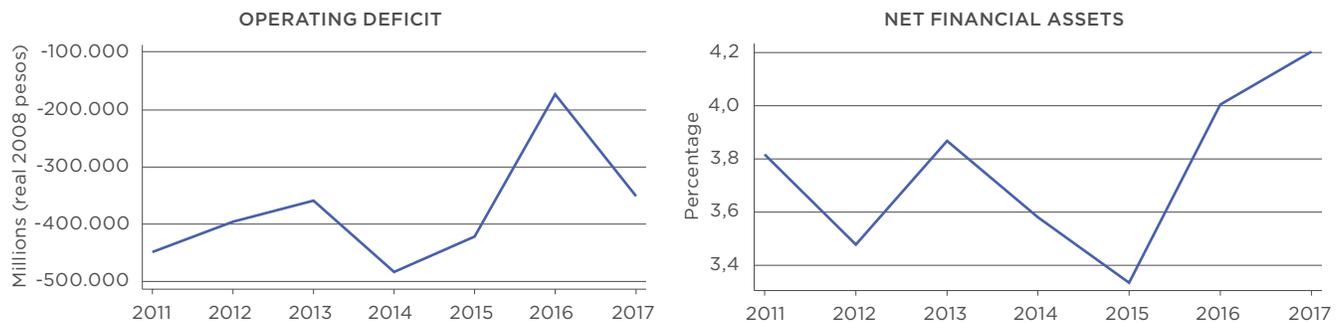
Regarding the second dimension (financial), fiscal health is generally positive and has held steady (see Figure 5.15). Colombian cities show a strong capacity to cover not only their operational expenses, but also to generate capital surpluses that they can use for investment and other capital funding. This is true for every city in every year during the period under study. While this seems surprising, especially for a group of cities with such diverse characteristics, this operational discipline is mainly due to the strong institutional structure. This is because of regulations limiting indebtedness (Law 358/1997; Law 819/2003) and rules on rationalization of spending (Law 617/2000), where Colombia has been successful.

The first criterion, operational deficit, has shown a long-term positive pattern since almost all cities over the whole period of analysis have managed to avoid debt. The second financial indicator, net financial assets, shows that, on average, Colombia's main cities have had steady liquidity,

with minor fluctuations related to the national economic cycle, and with a clear rebound in 2016 and 2017. This suggests that in the short and medium term, cities will improve their ability to cover their short-term obligations.

**FIGURE 5.15. FINANCIAL INDICATORS, 2011-17**

(annual average in 23 cities)

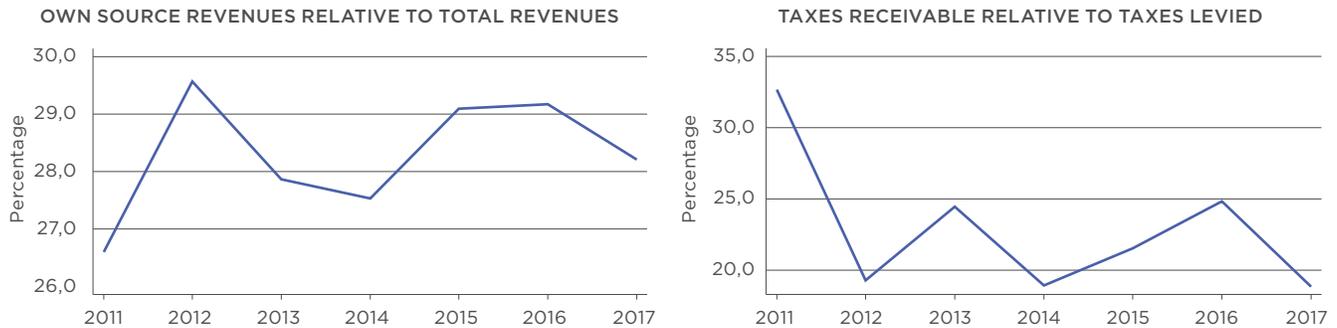


Source: Authors' elaboration based on CHIP-FUT database, available at: [https://www.chip.gov.co/schip\\_rt/index.jsf](https://www.chip.gov.co/schip_rt/index.jsf).

The third dimension (tax and revenues) also shows a general positive adjustment, especially considering the entire period, with the relative own-source revenues increasing and taxes receivable falling (see Figure 5.16). Nevertheless, both indicators have remained steady, the first about 28 percent of total revenues and the second 23 percent of the total taxes levied. Performance in terms of the amount of taxes levied remain as receivable depends very much on their institutional and administrative strength, and not necessarily on their degree of development. On the other hand, the proportion of own-source revenues is clearly related to cities' socioeconomic progress, since in Colombia local governments have two main financial sources: own-source revenues and transfers from the central government. In summary, although it is not possible to predict whether the average levels of these two indicators will continue to be healthy, they have been moving in the right direction in recent years.

**FIGURE 5.16. TAX AND REVENUE INDICATORS, 2011-17**

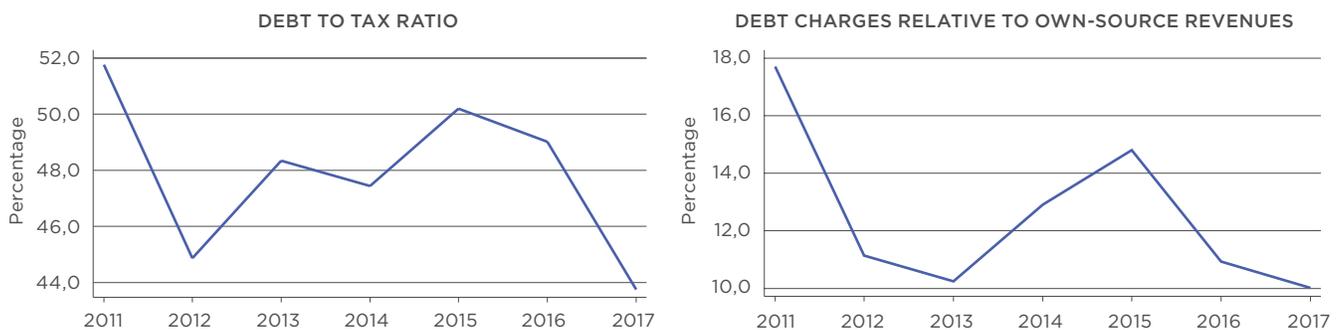
(annual average of 23 cities)

Source: Authors' elaboration based on data from DANE, available at <https://www.dane.gov.co/index.php>.

The debt dimension shows that overall, thanks to the regulation on limits of indebtedness (Law 358/1997; Law 819/2003), Colombian cities have managed to keep debt under control. This can be seen in Figure 5.17, where both ratios show not only low relative indebtedness but also a decreasing pattern. In the first case, debt-to-tax ratio went from an average of 52 percent in 2011 to 44 percent in 2017, while debt charges relative to own-source revenues decreased from 18 to 10 percent during the same period.

**FIGURE 5.17. DEBT INDICATORS, 2011-17**

(annual average 23 cities)

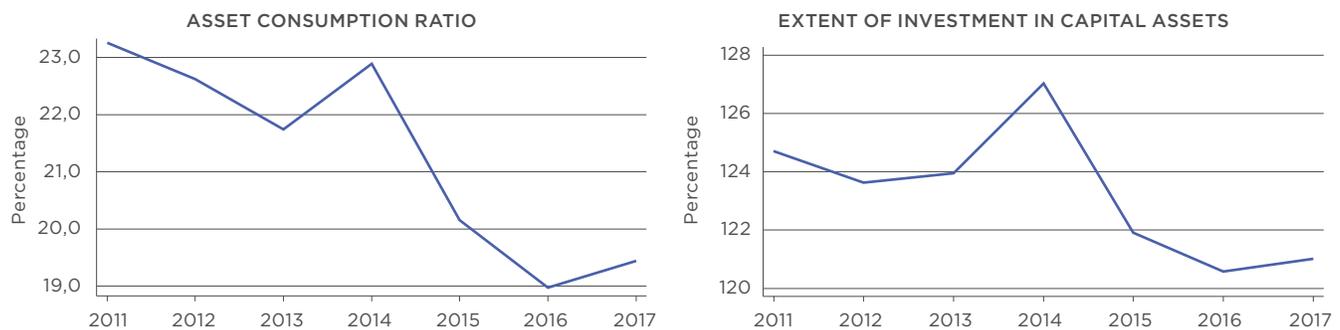
Source: Authors' elaboration based on CHIP-FUT database, available at [https://www.chip.gov.co/schip\\_rt/index.jsf](https://www.chip.gov.co/schip_rt/index.jsf).

The last dimension (infrastructure) includes two indicators not used before in this type of analysis. The asset consumption ratio shows, on average,

that the main cities in Colombia have managed to maintain their tangible capital assets and have even increased their capability to do so, since the ratio fell from 23 percent in 2011 to 19 percent in 2017. In addition, the extent of investment in capital assets is also showing positive figures, and cities are increasing their relative investments in capital assets compared to the original cost. In the case of construction, 100 percent is the optimal threshold where cities take care of preserving the full value of their assets. On average, the main cities in Colombia reduced this ratio from 125 to 121 percent between 2011 and 2017.

**FIGURE 5.18. INFRASTRUCTURE INDICATORS, 2011-17**

(annual average 23 cities)



Source: Authors' elaboration based on CHIP-FUT database, available at: [https://www.chip.gov.co/schip\\_rt/index.jsf](https://www.chip.gov.co/schip_rt/index.jsf).

In summary, the fiscal health for the 23 main cities of Colombia has remained positive. However, the country has over 1,000 municipalities with significant disparities, and this study analyzes only a fraction of them. Although they represent a large proportion of the population (about 45 percent) and of GDP (about 60 percent), this analysis should not be considered a comprehensive review of all of Colombia's municipalities.

# Conclusions

This study has shown that every SNG is unique, and its fiscal health is also unique. All of them have different problems and means of enforcing authority. Their local culture is also different, which makes it necessary to tailor public policy decisions to their individual circumstances. This is one of the reasons why a regional analysis is imperative. The decision and preferences of local governments depend on various factors including their locations, whether they share national or international borders, and whether they are coastal or interior jurisdictions. Despite there not being a generalized pattern for all fiscal health indicators, in Colombia there is evidence of regional and spatial commonalities on cities' performance on public finance management.

The examination of fiscal health of the main cities in Colombia revealed that, on average, they are performing well. Nevertheless, there are regional disparities. The most disadvantaged are those cities located in the Caribbean and Pacific coastal regions, where the study found some weaknesses in two indicators own-source revenues relative to total revenues and taxes receivable relative to taxes levied. This may be revealing weak capacity of peripheral local coastal governments in enforcing the law, mainly due to weak administrative capacity, and poor or no systematization of fiscal and financial management processes, especially billing and collection of tax and non-tax revenues. All this combined with small and insufficient legal teams makes it difficult for local governments to make the most of their revenue's potential. The second weakness that prevails in most Caribbean and Pacific cities is the area of tax base growth and debt-to-tax ratio, which is consistent with previous results and underscores the problem of unexploited revenue potential in some local governments. Cities' capacity to repay debt with tax revenue indicates difficulty in maintaining fiscal sustainability.

On the other hand, cities in the interior have the best relative position in terms of their fiscal, financial, and budgetary management. For those located in the eastern and central regions, there are also some common characteristics. The major fiscal health vulnerabilities are population growth, financial issues (both operating deficit and net financial assets), and debt (in this case debt charges relative to own source). The first one is consistent with the degree of development of the cities, since the more educated they

are, the lower their population growth. The other two dimensions (financial and debt) are revealing cash-flow tightness and weak capacity to cover short-term obligations. In summary, results indicate that cities belonging to lagging regions deal more with structural and long-term fiscal health issues while cities in the interior face short-term liquidity obstacles.

In terms of individual cities, we identified Bogota (the capital city), Cali, and Cartagena as those with the best and most persistent fiscal health, while Manizales, Santa Marta, and Valledupar have the weakest. The results also revealed two particular cases, Quibdo and Florencia, which shifted from the two extreme positions, the first from an average/strong fiscal health in 2011 to weak/very weak in 2017, and the second with substantial improvement, moving up from a weak/very weak position to a strong/very strong during the same period.

The previous assessment does not mean that particular regions face exclusive fiscal health issues. Rather, the cities' behavioral patterns depend on their location and their socioeconomic development. Despite the relative drawbacks of their particular fiscal and financial situations, local governments do not have serious problems that affect their long-term fiscal sustainability. One of the main reasons was the implementation of measures intended to impose limits on indebtedness capacity, the regulation of credit, and the rationalization of spending. Remaining tasks include improving the quality of spending and increasing transparency indicators.

A first point about the potential implications of the fiscal health in Colombia relates to the positive and generalized results in terms of debt. The measures adopted in the 1990s have enabled departments and municipalities in the country to keep relative spending and indebtedness low, and the results are encouraging in terms of fiscal health. A key issue in this respect is to make sure that the restrictions do not hinder development or economic growth. Governments, like individuals, are not always able to make cash payments; they must use credit lines for many of their main projects. In this sense, it is important to evaluate whether spending and indebtedness restrictions might affect development and economic growth goals.

A second point is tax revenues. Colombian legislation has also made available a set of important measures for municipalities, which help them increase their own-source revenues. Although these resources risen steadily in recent decades (Bonet, Pérez, and Mestre, 2018), it has also been demonstrated that SNGs are well below their tax collection potential

(Bonet and Ayala, 2017). These authors found that the more developed municipalities collect about 57.6 percent of their potential revenues, while the less developed ones collect only 19.9 percent. Thus, SNGs could substantially improve their absolute revenues if they made changes to take advantage of their significant revenue potential and hence their fiscal health.

A third issue is the quality of spending. Although this aspect is not easy to measure, since it has several dimensions (i.e., prioritization, rationalization, strategic allocation, accountability, and effectiveness of spending) (Heriwibowo et al., 2016), as well as performance and efficiency (Cepparulo, Mourre, and Schmitt-Nilson, 2016), it is also related to the quality of the general government. The importance of closely monitoring these indicators is that they are key to improving not only planning, budgeting, and general fiscal health; they also promote economic development and reduce regional disparities (Rodríguez-Pose and Ketterer, 2019).

## Methodological Annex

### ANNEX 2. DATA SOURCES AND DEFINITIONS

	INDICATOR	SOURCE	VARIABLES USED IN THE CALCULATION
PROFILE	1. POPULATION	DANE - Population projections	Population projections estimated by Pachón (2012)
	2. INCOME PER CAPITA	CHIP - FUT income DANE - Population projections	Total income (tax + non-tax)/total population
	3. UNEMPLOYMENT RATE	DANE - Unemployment rate	Unemployment rate
	4. EXPENDITURES PER CAPITA	CHIP - FUT operating expenses CHIP - FUT investment expenses CHIP - FUT debt service expenses DANE - Population projections	(Operating expenses + investment expenses + debt service expenses)/total population
	5. TAXES PER CAPITA	CHIP - FUT income DANE - Population projections	Tax income/total population
EXTERNAL	6. POPULATION GROWTH	DANE - Population projections	Computed as the bi-annual average of the population growth rates
	7A. TAX BASE GROWTH (PROPERTY TAX BASE)	Instituto Geográfico Agustín Codazzi (IGAC) and the corresponding local cadasters for Bogotá, Cali, Medellín	Computed as the bi-annual average of the cadastral appraisals
	7B. TAX BASE GROWTH (GDP PROXIED BY THE INDUSTRY AND COMMERCE TAX, OR ICA)	CHIP - FUT income DANE - Departmental Accounts	First, a proxy of municipal GDP is estimated as follows: we compute the participation of each municipality's ICA in the total sum of that tax for all municipalities within their corresponding department. Then, the resulting participation is multiplied by their corresponding departmental GDP, which correspond to a proxy of the municipal GDP. Then, the growth rate is computed and after that the bi-annual average growth rate

FINANCIAL	8. OPERATING DEFICIT	CHIP - FUT income CHIP - FUT operating expenses CHIP - FUT investment expenses CHIP - FUT debt service expenses CHIP - FUT public debt DANE - Inflation	<ol style="list-style-type: none"> <li>1. The total income is computed</li> <li>2. The total expenses is computed (operating expenses + investment expenses + debt service expenses)</li> <li>3. Interest paid in each year is multiplied by the corresponding inflation rate, which corresponds to the inflation component of interest payments</li> <li>4. Operating deficit is computed as: total expenses - inflation component of interest payments - total income</li> </ol>
	9. NET FINANCIAL ASSETS	CHIP - Public accounting information	<ol style="list-style-type: none"> <li>1. Financial assets are computed as: cash + investments and derivative instruments + income receivable + debtors + inventories</li> <li>2. Financial liabilities are computed as: public credit operations and Central Bank financing + financing operations and derivative instruments + income payable + labor and social security commitments + other bonds and securities issued</li> <li>3. Net financial assets are computed as: financial assets/ financial liabilities</li> </ol>
TAX AND REVENUE	10. OWN-SOURCE REVENUES RELATIVE TO TOTAL REVENUES	CHIP - FUT income	<ol style="list-style-type: none"> <li>1. Own-source revenue is computed as: tax revenue + non-tax revenue - transfers</li> <li>2. Total revenue is computed as: current revenues + capital revenues</li> <li>2. The quotient between the two is computed: own-source revenue/total revenue</li> </ol>
	11. TAXES RECEIVABLE RELATIVE TO TAXES LEVIED	CHIP - Public accounting information CHIP - FUT income	<ol style="list-style-type: none"> <li>1. Income receivable corresponding to current-term taxes is taken for each year (taxes receivable)</li> <li>2. Total tax revenue is taken (taxes levied)</li> <li>3. The quotient between the two is computed: taxes receivable/taxes levied</li> </ol>
DEBT	12. DEBT TO TAX RATIO	CHIP - FUT public debt CHIP - FUT income	<ol style="list-style-type: none"> <li>1. Size of debt is taken as the debt balance of the corresponding year.</li> <li>2. Total tax revenue is taken</li> <li>3. The quotient between the two is taken: size of debt/total tax revenue</li> </ol>
	13. DEBT CHARGES RELATIVE TO OWN-SOURCE REVENUES	CHIP - FUT public debt CHIP - FUT income	<ol style="list-style-type: none"> <li>1. Debt charges are computed as the sum of the credit disbursement and the interest paid in the corresponding year</li> <li>2. Own-source revenues are computed as the sum of the tax and no-tax revenue</li> <li>3. The quotient between the two components is computed: debt charges/own-source revenues</li> </ol>

INFRASTRUCTURE	14. ASSET CONSUMPTION RATIO	CHIP - Public accounting information	<ol style="list-style-type: none"> <li>1. Closing amortization balance is computed as follows: the sum of the accumulated depreciation (property, plant and equipment), accumulated amortization (public, historical and cultural use goods), amortization of real state given in administration, amortization of real state given in commodatum, and accumulated amortization of intangibles (software, licenses, etc.)</li> <li>2. Closing cost balance is computed as follows: the sum of goods for public use in service, concession, historical and cultural in service, goods for public use, cultural and historical given in administration, and other assets (real estate given in administration, commodate and concession)</li> <li>3. Land is computed as follows: the sum of land (exploited), land (non-exploited), and land (investment properties)</li> <li>4. Asset consumption ratio is computed as: closing amortization balance/(closing cost balance - land)</li> </ol>
	15. EXTENT OF INVESTMENT IN CAPITAL ASSETS	CHIP - Public accounting information	<ol style="list-style-type: none"> <li>1. Closing cost balance is computed as follows: the sum of goods for public use in service, concession, historical and cultural in service, goods for public use, cultural and historical given in administration, and other assets (real estate given in administration, commodate and concession)</li> <li>2. Closing net book balance is computed as: closing cost balance - closing amortization balance</li> <li>3. Extent of investment in capital assets is computed as: Closing cost balance/closing net book balance</li> </ol>

Source: Authors' elaboration.

DANE is the main source of demographic information in Colombia. It collects, processes and publishes national censuses and population projections for the 1,101 municipalities in the country. DANE also conducts a wide variety of surveys that monitor most of the social, economic, and cultural sectors in Colombia.

Annual population projections reported by DANE are used for computing population growth and per capita versions of some indicators. This office also computes GDP. Apart from the usual aggregated value computed at the national level for the different sectors of the economy, DANE also produces and publishes a departmental GDP, an uninterrupted time series available from 1980 for the 32 departments and the capital city. Its calculation is consistent with the national GDP and is based on international concepts and definitions used by the National System of Accounts. Also, in an effort to improve subnational accounts on aggregated value, and in compliance with Law 1551/2012, since 2013 DANE has also been producing and publishing municipal GDP as a disaggregation of the national and departmental aggregated value (DANE, 2016).

In this study, municipal GDP is used as a proxy for the tax base together with municipal cadastral appraisals. Because DANE's municipal GDP is not available over a long period of time, a version of this indicator was computed based on the departmental GDP and municipalities' budgetary information, in particular the ICA. It is computed as the participation of each municipality's ICA in the total sum of the tax for all municipalities within their corresponding department. Then, the resulting participation is multiplied by their corresponding departmental GDP.

Another variable that uses data compiled by DANE is the unemployment rate. This is computed based on household surveys, which have been evolving in Colombia since the end of the 1960s when the first attempt of this kind was undertaken in Colombia. First, it was the National Household Survey (Encuesta Nacional de Hogares, or ENH), a multipurpose survey whose main objective was collecting data on labor market variables, as well as other socioeconomic information of national interest. The ENH began collecting quarterly data in 1976 with variable coverage in Barranquilla, Bogota, Cali, and Medellin, and semi-annually for Bucaramanga, Manizales, and Pasto. Then, since 2000 a new stage of household surveys was performed, the Continuous Household Survey (Encuesta Nacional Continua, or ECH) covering the 13 main cities and metropolitan areas, and differentiating between urban and rural areas. A third stage began in 2006 and is ongoing: the Integrated Household Survey (Gran Encuesta Integrada de Hogares, or GEIH), which introduced a series of reforms and increased coverage. It collects information quarterly on 24 cities and metropolitan areas. This survey combined three surveys: the ECH, the Income and Expenses Survey (Encuesta de Ingresos y Gastos, or EIG), and the Quality of Life Survey (Encuesta de Calidad de Vida, or ECV) (DANE, 2009).

Georeferenced data uses as its main source the Agustin Codazzi Geographical Institute, which is responsible for producing the official cartography as well as collecting data on cadastral appraisals. There are a few exceptions where cadastral data are self-collected and managed by the municipalities themselves: Bogota, Cali, and Medellin. The growth rate of cadastral appraisals is used as a proxy for the property tax base.

Chapter

# 06

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BY  
ROBERTO DURÁN

## MEXICO

MUNICIPAL FISCAL  
HEALTH IN  
LATIN AMERICA



# Context

Mexico is a Federal Republic consisting of 31 states, the federal capital, and 2,446 municipalities. A municipality is governed by an *ayuntamiento*, an institution elected by popular vote, which constitutes the local government tier in the Mexican federal system. The municipal president is the head of the *ayuntamiento*, which is also led by a collegiate body named *cabildo*, that is in charge of administrative decisions. The *ayuntamiento* lasts three years in office and until 2018, the municipal president could not be re-elected for the immediate term.

The 2,446 municipalities in Mexico are heterogeneous in terms of their population and their territorial composition. Their population can range from fewer than 500 inhabitants to more than 1 million. The largest and least dense municipalities are concentrated in the north of the country; while small, densely populated municipalities are located in the south. The territorial division of the country was shaped by historical and political factors, which do not necessarily reflect the spatial distribution of socioeconomic activities (Bassols-Batalla, 1993). For example, the state of Oaxaca, located in the south, is divided into 570 municipalities, while the northern state of Baja California is divided only in 5 municipalities. Both states have a similar surface area (97.5 and 86.7 sq. km. respectively), but the population of Oaxaca is much higher (3.6 million vs. 2.8 million) (Duran-Fernandez, 2007).

Since 2010, the National Population Council (Consejo Nacional de Poblacion, or CONAPO) has identified 59 metropolitan areas in Mexico. A metropolitan area is a unified urban agglomeration. Given this definition, CONAPO's metropolitan areas do not necessarily match the territory of a single municipality. Nor do metropolitan areas, location, or cities represent a formal government level. Every large city in Mexico can be associated with a municipality except for Mexico City, which is a federal district. For example, the City of Guadalajara is associated with the municipality of Guadalajara. There are other municipalities that are part of the metropolitan area of Guadalajara (e.g., Tlanquepaque, Tonalá, and Zapopan) but Guadalajara is where the political, demographic, and economic core of the metropolitan area is located.

The federal fiscal framework is highly centralized as the result of the implementation of a fiscal coordination system in the early 1980s. Under this system, the states voluntarily gave up their taxation attributions, and

the federal government is the only entity that can levy taxes on income, consumption, and production (personal and corporate tax, a federal value added tax (VAT), and federal taxes on the production of special products such as crude oil, gasoline, alcohol, and cigars). The states can levy taxes on payrolls, lodging, lotteries, and vehicles. The main fiscal resources of the municipal government are federal and state grants and transfers. However, the country's Constitution grants municipalities the right to tax real estate, called *predial*, the most important one. At the national level, approximately 15 percent of total municipal revenues are local taxes, mainly *predial*, while local contributions (which are payments for municipal services) represent approximately 7 percent of total revenues, and other contributions, such as penalty fees, represent 4 percent.

The system also mandates that the federal government must distribute 30 percent of their revenues among the 32 states following a formula that considers population, tax efficiency, and the relative size of the economy. At least 20 percent of the federal grants that the state receives are distributed among the municipalities. They also receive federal grants for infrastructure.

The expenditure system is highly decentralized leading to important vertical imbalances. The municipal government has several obligations and responsibilities by law, including the provision of water and sewage systems, the administration of the local cadaster and land policy, the provision of local security, and several urban services. These local governments are mainly executive authorities that have to follow federal and state legislation. Twenty-two percent of the municipal budgets are assigned to wages, which include municipal public servants and municipal police. Other non-labor operating expenses represent 31 percent of the budget, and 13 percent are subsidies and grants to municipal public entities such as water and sanitation state-owned enterprises. Sixty-six percent of the municipal budget is used to finance current expenditure. Public investment represents 28 percent of the budget of municipalities at the national level (used for public works such as local streets and bridges, water and sanitation, public markets, parks, police stations, and urban equipment and infrastructure). Large-scale transportation infrastructure, schools, and hospitals are typical state or federal level projects.

Municipalities are allowed to contract public debt with any authorized financial institutions, and they can even issue bonds in the debt market. At the national level, municipalities use 6 percent of their budgets for public debt service. As of June 2017, 866 municipalities had at least one credit registered at the Ministry of Finance, and the total balance at the

national level was MXN55.3 MM. The federal Constitution states that public debt can be used only to finance public investment. Apart from public debt, municipalities can hold other nonfinancial liabilities, such as accounts payable.

On the asset sides, municipalities hold floating assets, which include cash and short-term investments, and non-current assets, comprising long-term financial investments and real assets. The real assets of municipalities are the administrative buildings of the government and public infrastructure. As mentioned above, municipal infrastructure typically includes local streets and bridges, water and sanitation, public markets, parks, police stations, and urban equipment and infrastructure. Assets are valued following any of the standard methodologies set by the National Accounting Law. These methodologies are acquisition cost, replacement value, and historical investment cash flows. Assets are depreciated following accounting criteria.

## Municipal Profiles

This section analyzes the profiles of 35 large municipalities. The sample includes capital cities as well as non-capital cities that are relevant because of their demographic and economic weight (see Table 6.1 and Figure 6.1). Due to comparability restrictions, Mexico City is excluded as it is both a state and a municipality in a single entity, as well as the municipalities that are part of the Metropolitan Area of Mexico City, formed by 16 delegations that do not have the same legal, political, or economic attributions as a municipality.

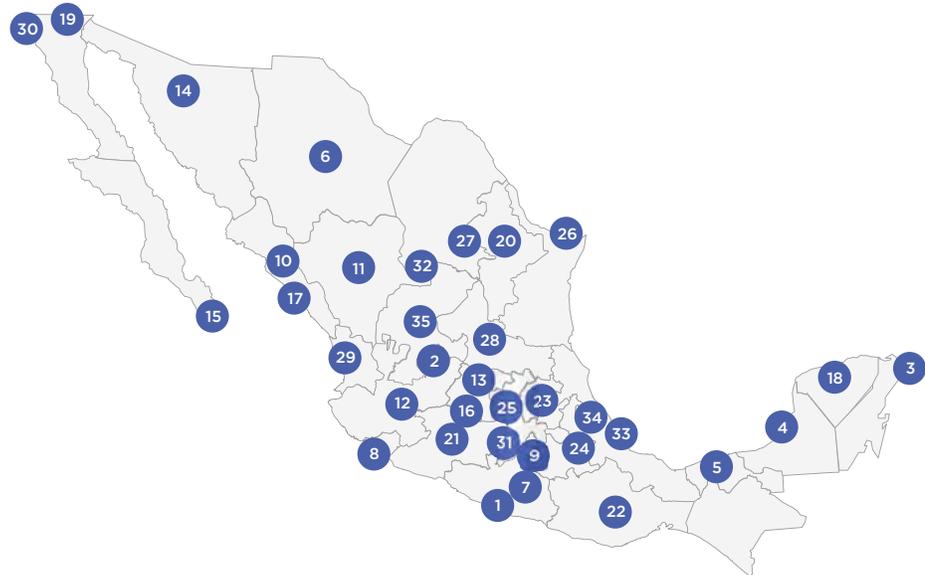
**TABLE 6.1. SAMPLE**

	MUNICIPALITY	STATE	STATUS
1	ACAPULCO DE JUAREZ	Guerrero	Non-capital
2	AGUASCALIENTES	Aguascalientes	Capital
3	BENITO JUAREZ	Quintana Roo	Non-capital

4	CAMPECHE	Campeche	Capital
5	CENTRO	Tabasco	Capital
6	CHIHUAHUA	Chihuahua	Capital
7	CHILPANCINGO DE LOS BRAVO	Guerrero	Capital
8	COLIMA	Colima	Capital
9	CUERNAVACA	Morelos	Capital
10	CULIACAN	Sinaloa	Capital
11	DURANGO	Durango	Capital
12	GUADALAJARA	Jalisco	Capital
13	GUANAJUATO	Guanajuato	Capital
14	HERMOSILLO	Sonora	Capital
15	LA PAZ	Baja California	Capital
16	LEON	Guanajuato	Non-capital
17	MAZATLÁN	Sinaloa	Non-capital
18	MERIDA	Yucatan	Capital
19	MEXICALI	Baja California	Capital
20	MONTERREY	Nuevo Leon	Capital
21	MORELIA	Michoacan	Capital
22	OAXACA DE JUAREZ	Oaxaca	Capital
23	PACHUCA DE SOTO	Hidalgo	Capital
24	PUEBLA	Puebla	Capital
25	QUERETARO	Queretaro	Capital
26	REYNOSA	Tamaulipas	Non-capital
27	SALTILLO	Coahuila	Capital
28	SAN LUIS POTOSI	San Luis Potosi	Capital
29	TEPIC	Nayarit	Capital
30	TIJUANA	Baja California	Non-capital
31	TOLUCA	Estado de Mexico	Capital
32	TORREON	Coahuila	Non-capital
33	VERACRUZ	Veracruz	Non-capital
34	XALAPA	Veracruz	Capital
35	ZACATECAS	Zacatecas	Capital

Source: Authors' elaboration.

FIGURE 6.1. MUNICIPALITIES IN THE SAMPLE

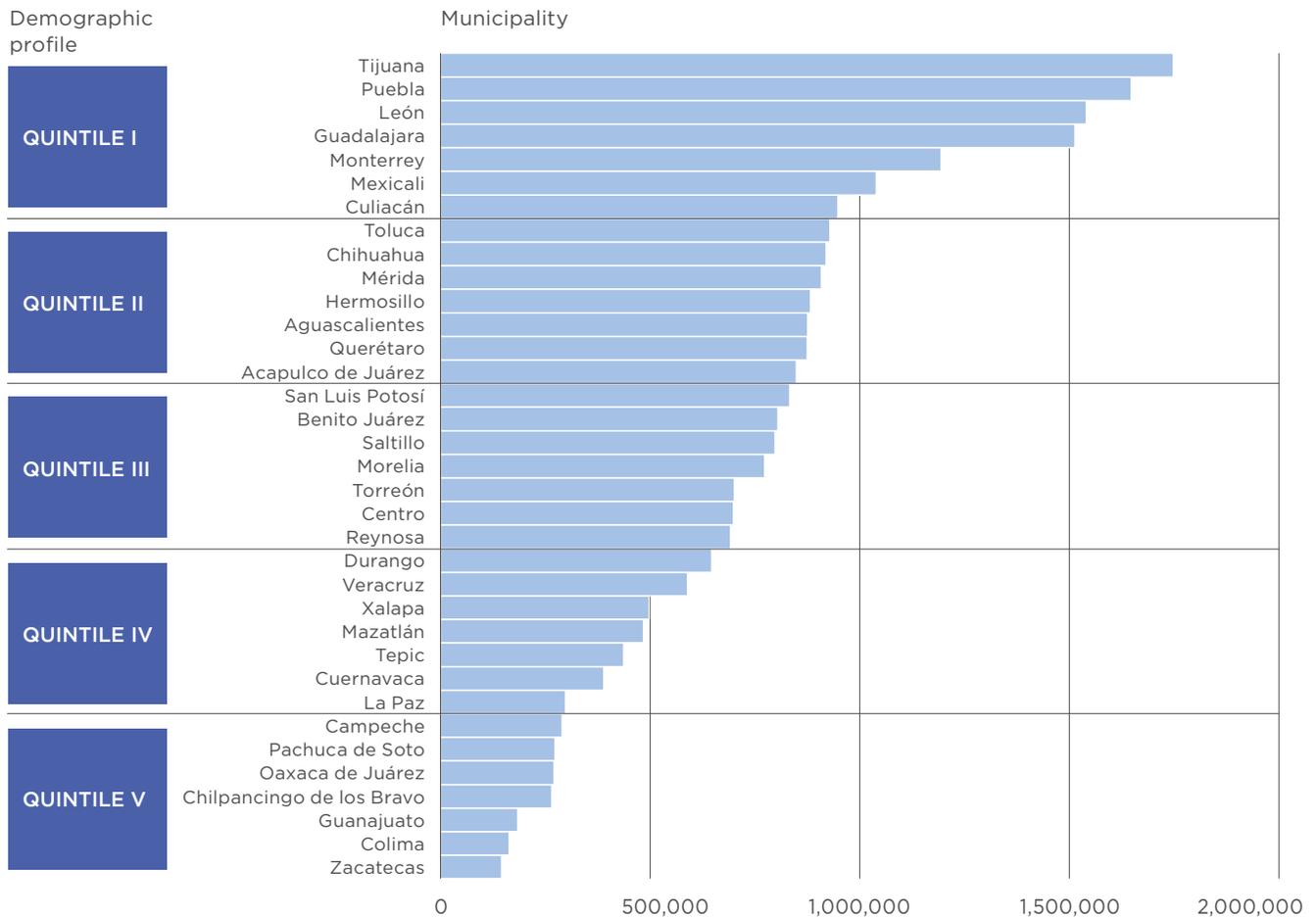


Source: Authors' elaboration base on the Instituto Nacional de Estadística, Geografía e Informática (INEGI) database, available at <https://en.www.inegi.org.mx/>.

## Population

The populations of the municipalities in the sample range from 1.7 million (Tijuana) to 146,000 (Zacatecas). The average population is 754,000. The sample includes six municipalities with a population larger than 1 million: Guadalajara, Leon, Mexicali, Monterrey, Puebla, and Tijuana. These municipalities are part of the largest metropolitan areas in the country. These cities are population and regional development poles where a large part of the country's economic activity occurs. The sample also includes 18 medium-size municipalities with populations between 0.5 and 1 million. They constitute a heterogeneous group of municipalities that function as industrial cities, tourist destinations, and administrative centers. Finally, the sample includes 11 small municipalities with a population below 500,000. They are mainly administrative centers with low economic activity (see Figure 6.2).

FIGURE 6.2. POPULATION, 2016



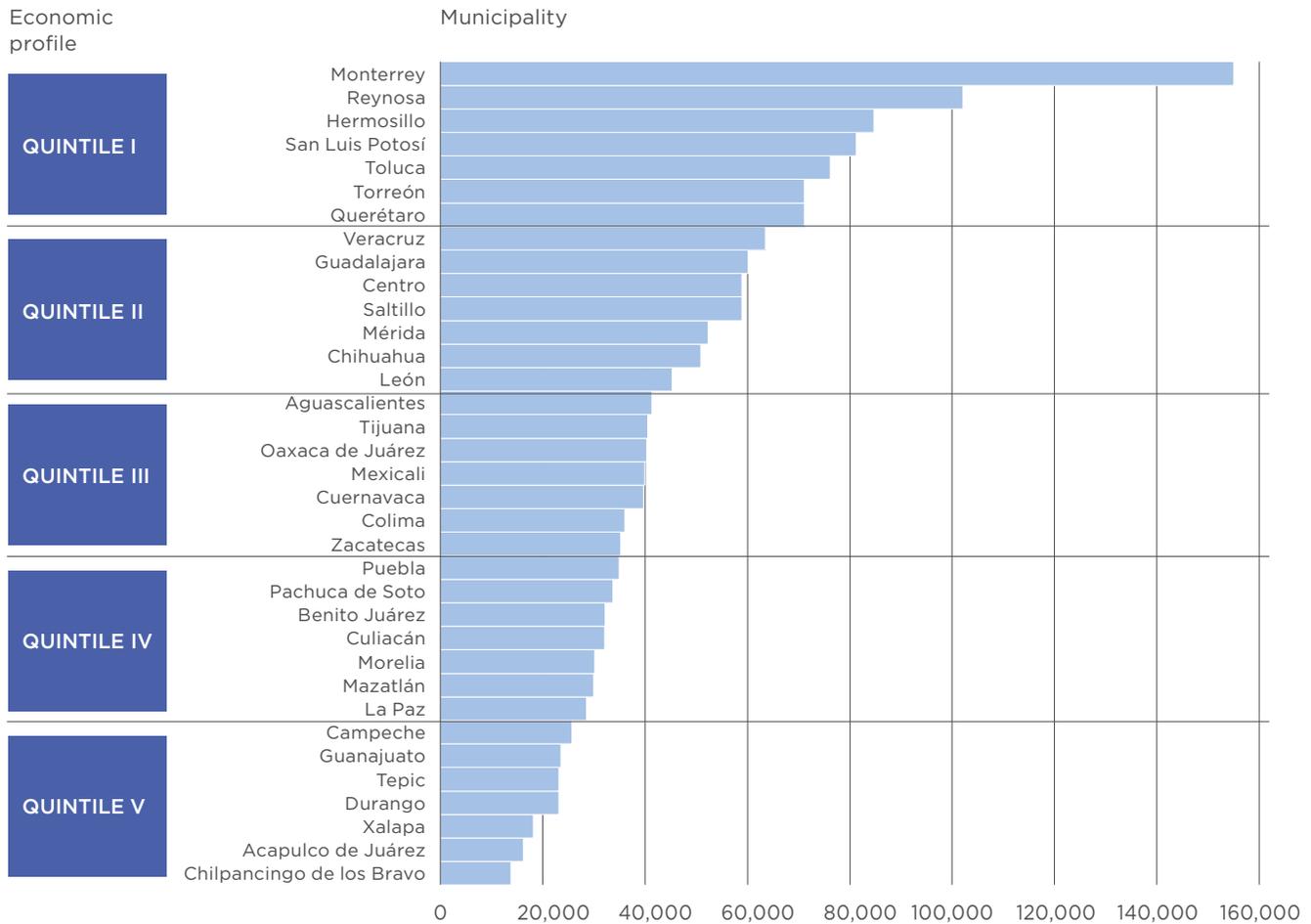
Source: Author’s elaboration based on CONAPO’S database, available at <https://www.gob.mx/conapo/acciones-y-programas/conciliacion-demografica-de-mexico-1950-2015-y-proyecciones-de-la-poblacion-de-mexico-y-de-las-entidades-federativas-2016-2050>.

### Income per Capita

Measured by its GVA per capita, the wealthiest municipality is Monterrey (with MXN154,000) and the poorest is Chilpancingo (with MXN13,000). The difference between these two municipalities is 11-fold. There are large disparities in the metrics of municipal income across the country. Unemployment also shows a large degree of variability that is not necessarily correlated with income levels. For example, Chilpancingo, which

is the poorest municipality in the sample, has the lowest unemployment rate (1.33 percent), while Centro, where the city of Villahermosa is located has an employment rate of 8.24 percent (see Figure 6.3).

**FIGURE 6.3. INCOME PER CAPITA, 2014 (IN MXN)**



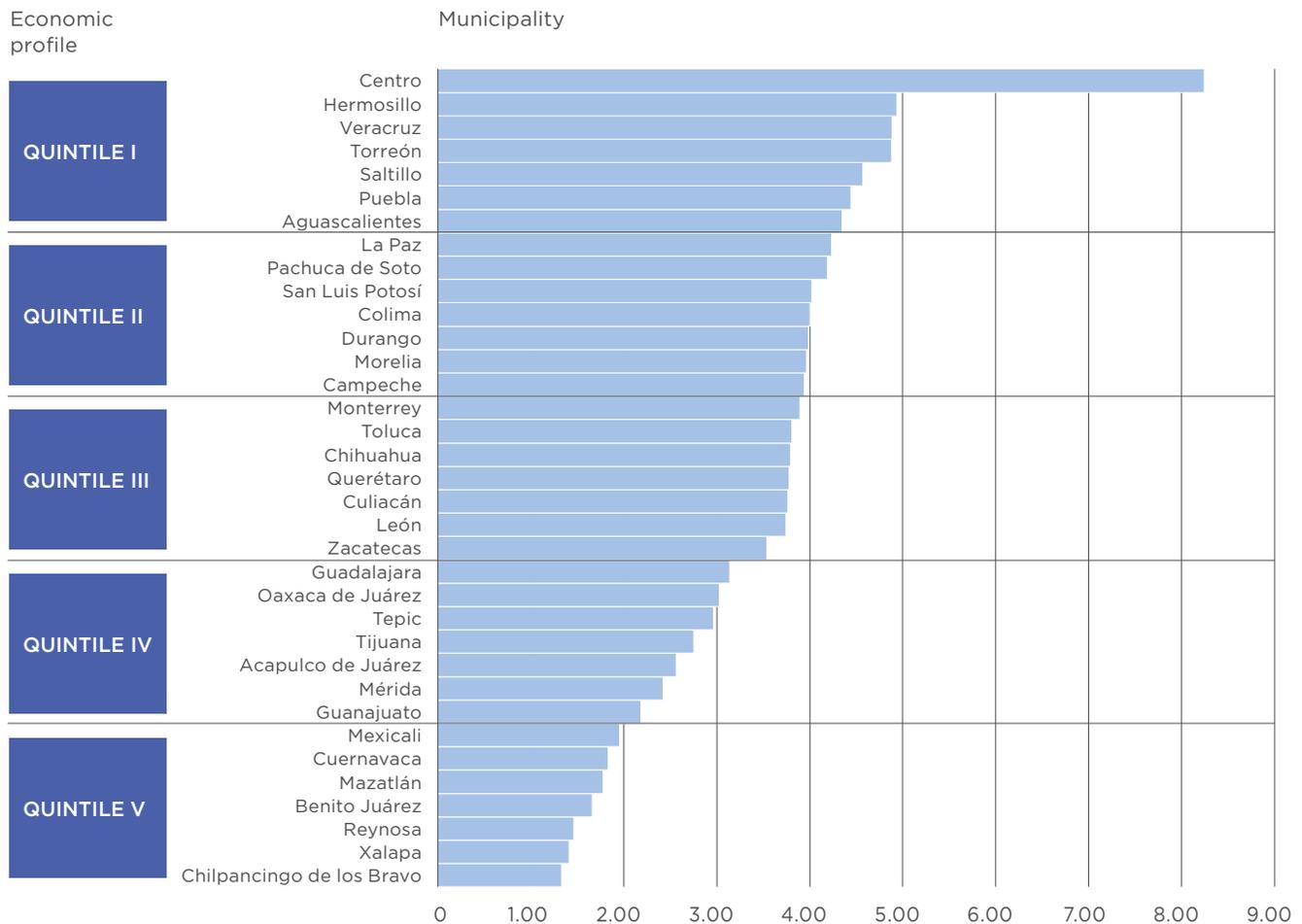
Source: INEGI database, available at <https://en.www.inegi.org.mx/>.

### Unemployment Rate

The disparities in income and unemployment across municipalities reflect both nationwide economic trends and local effects. For example, a general decline in oil prices and its impact on the oil industry is reflected in a

poor economic performance in municipalities where these activities are concentrated (e.g., Centro). A boom in light manufacturing activity (e.g., automotive and aerospace industry) has boosted the economic performance of municipalities in the center of the country (e.g., Aguascalientes, Leon, and Queretaro). In general, the municipalities with the largest populations and economic indicators are in the northern part of the country, as the result of integration with the United States (see Figure 6.4).

FIGURE 6.4. UNEMPLOYMENT, 2017

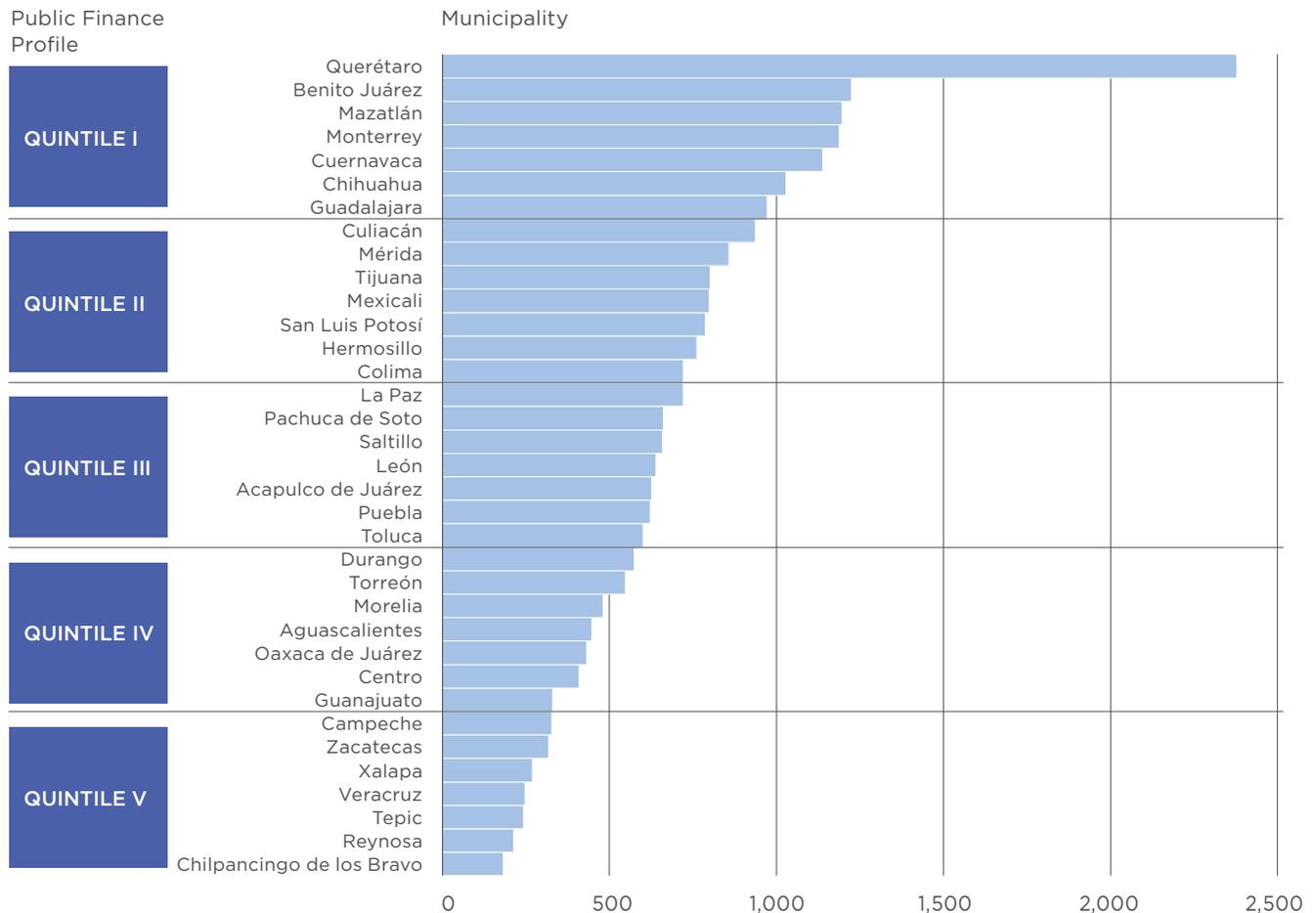


Source: Author’s elaboration based on CONAPO’s databases, available at <https://www.gob.mx/conapo/acciones-y-programas/conciliacion-demografica-de-mexico-1950-2015-y-proyecciones-de-la-poblacion-de-mexico-y-de-las-entidades-federativas-2016-2050>.

### Taxes per Capita

Surprisingly, there is no clear correlation between the demographic and economic profile of the municipality and its fiscal performance. For example, the simple correlation of population with taxation per capita or public expenditure per capita is 0.31 and 0.27, respectively, while the simple correlation of income per capita with taxation per capita or public expenditure per capita is 0.27 and 0.09, respectively. These correlations suggest that the revenue potential of municipalities is not directly related to the size of the economy. Other variables, such as government efficiency, play an important role in the performance of public finance at the municipal level. In terms of taxation, as shown in Figure 6.5, the best-performing municipalities are Queretaro, Benito Juarez (Cancun), Mazatlán, and Monterrey. Queretaro and Benito Juarez are high population growth municipalities, but apart from this feature it is difficult to find a general connection between these observations at this level. Similarly, the lowest-performing municipalities are a heterogeneous group with no clear connection among them.

FIGURE 6.5. TAXES PER CAPITA, 2016 (IN MXN)

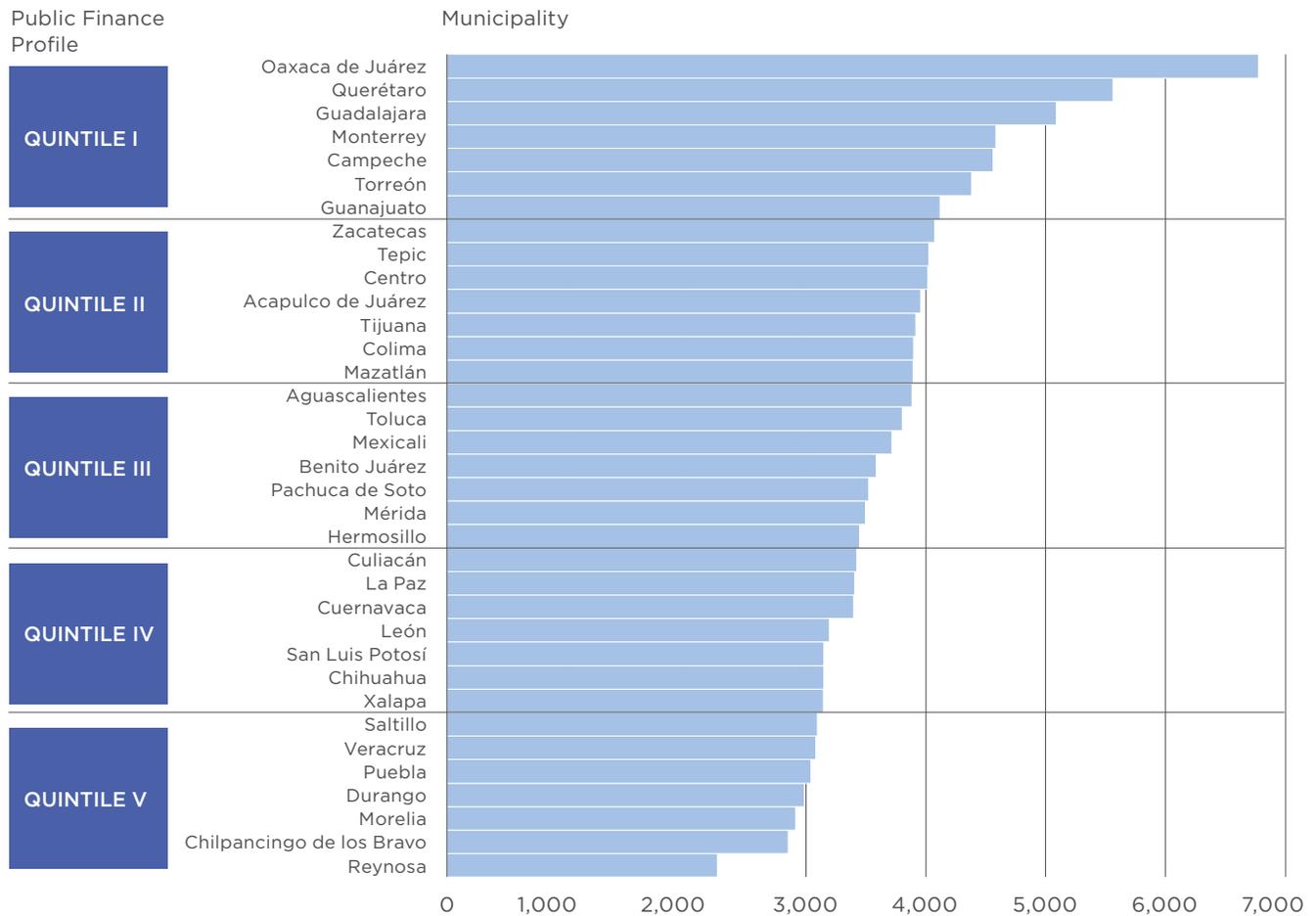


Source: INEGI (2016).

### Expenditure per Capita

When it comes to public expenditure, the municipalities with the highest values are Oaxaca and Queretaro (see Figure 6.6). Oaxaca is one of the poorest cities in the sample, with a low population, while Queretaro is one of the municipalities with the lowest poverty rates. While apparently contradictory, this observation is a good illustration of the Mexican municipal fiscal framework. The municipalities that are able to have large expenditure per capita are either rich municipalities with good tax performance (e.g., Queretaro) or poor municipalities that receive large federal or state grants to finance their public expenditures.

FIGURE 6.6. EXPENDITURE PER CAPITA, 2016 (IN MXN)

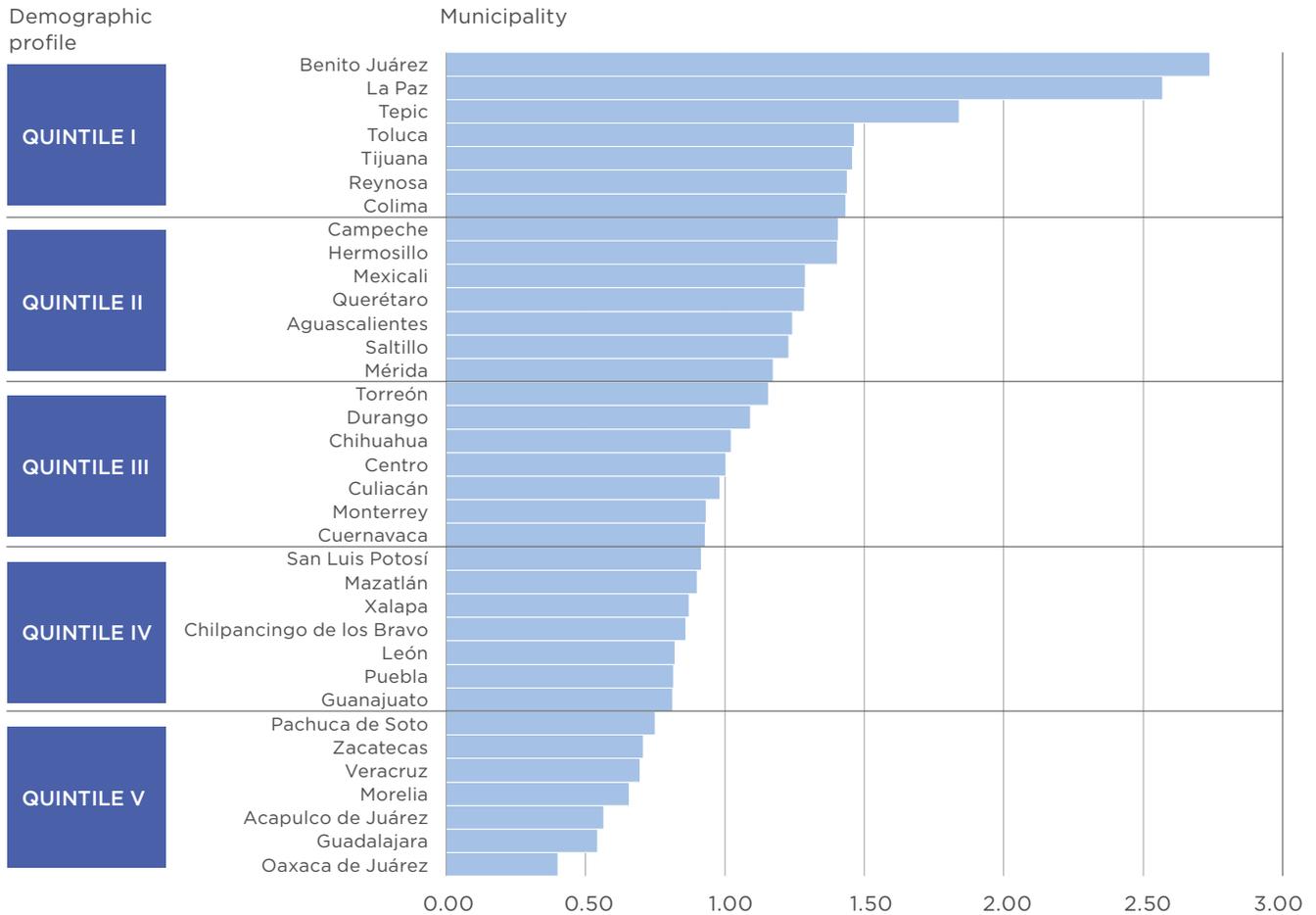


Source: INEGI (2016).

### Population Growth

The sample does not include municipalities with shrinking populations. The municipalities with the largest population growth are tourist areas (Benito Juarez (Cancun), border municipalities (Hermosillo, Mexicali, and Reynosa, Tijuana), industrial poles (Aguascalientes, Queretaro, Aguascalientes, Saltillo, and Toluca), and government administrative cities (Campeche, Colima, and Tepic) (see Figure 6.7). Municipalities with the lowest population growth are those that have been largely affected by violence and social unrest, such as Acapulco, Morelia, Oaxaca, and Veracruz. This basic characterization shows that demographic growth across municipalities does not follow a uniform pattern and may depend on several economic and social factors.

FIGURE 6.7. POPULATION GROWTH RATE, 2016-17



Source: CONAPO (2016-17).

# The Fiscal Health of Mexican Cities

To analyze the municipal fiscal health of the 35 sample municipalities in Mexico, a clustering exercise is carried out using the *k-mean* clustering algorithm, which groups the municipalities into 5 clusters according to their demographic, economic, and public finance characteristics (see Figure 6.8).

**Cluster 1** includes municipalities with large populations, economic performance above the average in terms of per capita revenues and positive public finance indicators. This cluster includes the municipalities of Chihuahua, Hermosillo, Merida, Mexicali, Monterrey, Queretaro, Reynosa, San Luis Potosi, and Toluca. These are large industrial centers with high per capita incomes and low unemployment. Geographically, these municipalities are located in the northern part of the country, close to the United States, and in the central part of the country, close to the central industrial centers of Bajío and Mexico City.

**Cluster 2** includes municipalities with large populations, average economic performance in terms in per capita revenue and average public finance indicators. This cluster includes the municipalities of Guadalajara, Leon, Puebla, and Tijuana. These are large industrial centers located in the northern and central part of the country. Qualitatively, this cluster is similar to Cluster 1; quantitatively, however, these municipalities have lower economic performance than those in Cluster 1.

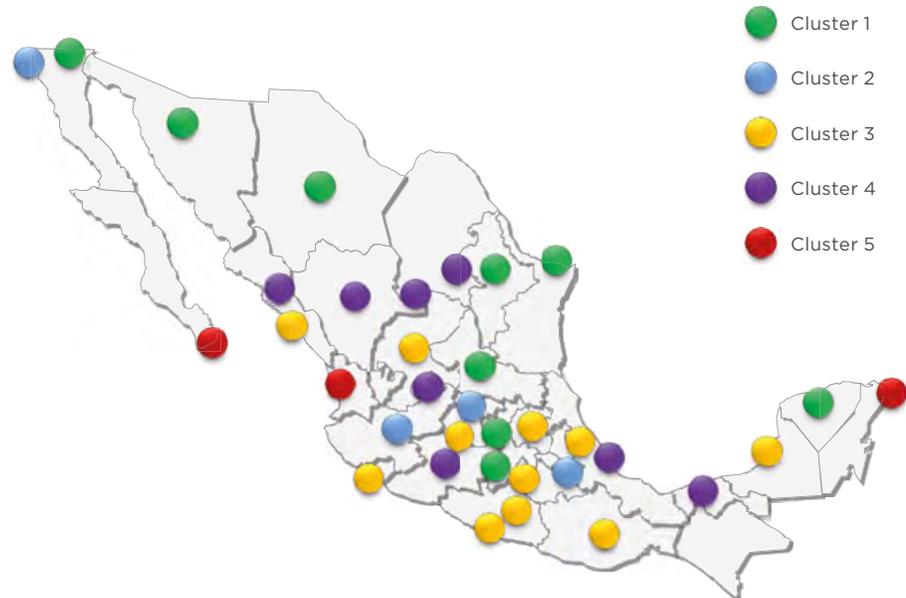
**Cluster 3** includes municipalities with low populations, economic performance below the average in terms of per capita revenue, and negative public finance indicators. This cluster includes Acapulco de Juarez, Campeche, Chilpancingo, Colima, Cuernavaca, Guanajuato, Mazatlán, Oaxaca de Juarez, Pachuca de Soto, Xalapa, and Zacatecas. Except for Guanajuato and Mazatlán, these municipalities are located in regions with negative economic performance (south, and southeast). Guanajuato and Mazatlán, despite being located in wealthy regions, are not development poles.

**Cluster 4** includes municipalities with medium-size populations, average economic performance in terms of per capita revenue, and negative public finance indicators. This cluster includes Aguascalientes, Centro, Culiacan, Durango, Morelia, Saltillo, Torreon, and Veracruz. All of these municipalities are medium-size industrial centers located in the central and northern part of the country. Qualitatively, this cluster is not very different to Cluster 2, but, quantitatively, the municipalities that comprise it had smaller populations.

**Cluster 5** includes municipalities with small populations that are growing rapidly. Their economic performance is below average in per capita revenue terms, and their public finance indicators are average in terms of tax collection. This cluster includes Benito Juarez, La Paz, and Tepic. Benito

Juarez and La Paz are large tourist centers with dynamic populations. Tepic is the main city of the State of Nayarit, a large administrative center whose growth has been triggered by public expenditure.

**FIGURE 6.8. CLUSTERS**



Source: Authors' calculations.

The benchmarking exercise considers five cash flow indicators: expenditure per capita, taxes per capita, own-source revenues relative to total revenues, tax growth, and operating deficit. We also present the following balance sheet indicators that characterize the public finance of municipalities: net financial assets, debt-to-tax ratio, debt charges relative to own-source revenues, asset consumption ratio, and extent of investment in capital assets.

### Expenditure per Capita

Expenditure includes operating expenditure, such as wages, procurement, service contracts, subsidies, and transfers to other public entities. Municipalities with high own-source revenues should have higher expenditure capacity. However, since federal social programs are an

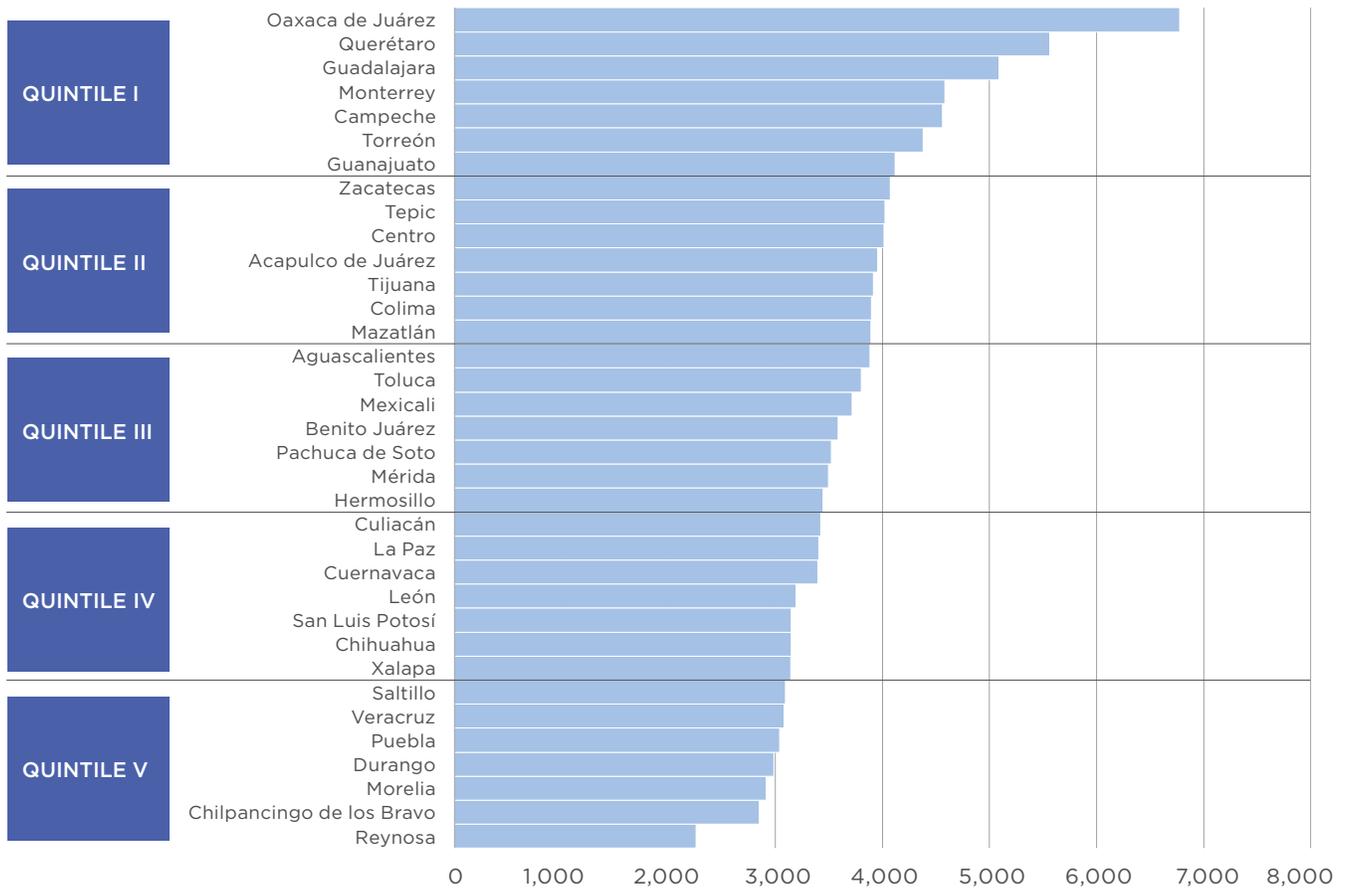
important component of federal grants, low-income municipalities are also expected to rank high on the expenditure per capita indicator. Therefore, the benchmark is expected to have a mix of low and high-income municipalities in every section of the distribution.

The benchmark shows that high-income municipalities, such as Queretaro, Guadalajara, and Monterrey, rank among the high expenditure observations (see Figure 6.9). However, they share this position with other low-income municipalities such as Campeche, Oaxaca, and Tepic, which rank in the top two quintiles. Campeche is an interesting case since this is an oil producing state that historically has received federal grants related to its oil activity. The lower quintiles have both high and low-income municipalities; however, there is a bias toward middle-income municipalities. As expected, no clear segmentation between high and low-income municipalities is observed given the peculiarities of the Mexican tax system, which delinks revenues from expenditure.

FIGURE 6.9. EXPENDITURE PER CAPITA, 2016 (IN MXN)

Cash flow public finance indicators:  
expenditure per capita

Municipality



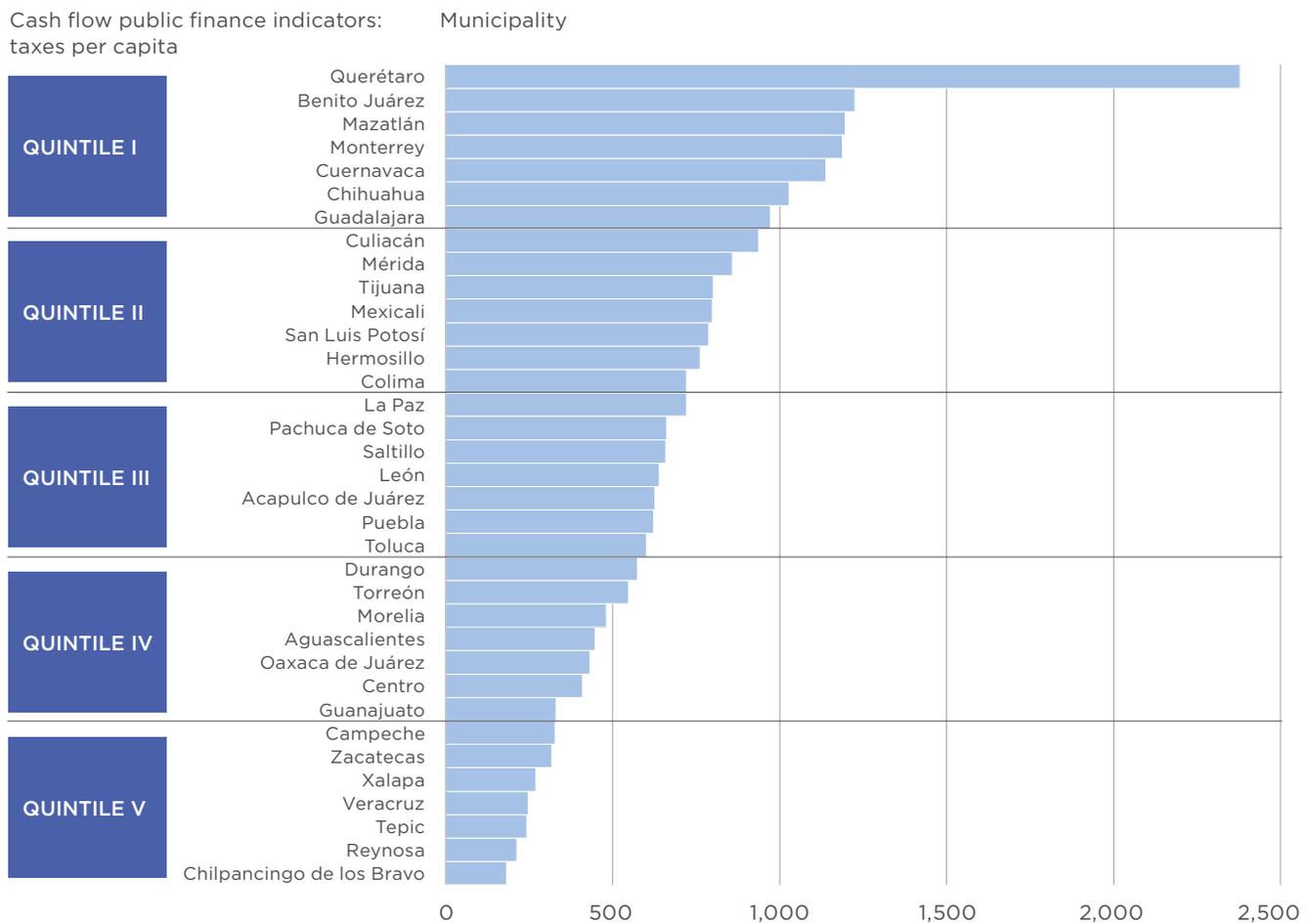
Source: INEGI (2016).

### Taxes per Capita

The power of municipalities to levy taxes is restricted to real estate. Residential, commercial, and industrial estate, as well as land are subject to *predial* (property tax). It is expected that highly urbanized municipalities will rank in the upper portion of the benchmark. A peculiarity of *predial* is that municipalities are more efficient at collecting taxes on new real estate developments. The reason is that new developments demand new municipal services; therefore, the authority is better at enforcing tax collection in exchange for those services. It is common to see implicit and explicit agreements between residents and authorities to use real estate tax collection exclusively on local public works. Therefore, growing urbanizations are expected to rank toward the top of the benchmark.

As expected, high-growth municipalities such as Benito Juárez (Cancun), Chihuahua, Guadalajara, Merida, Monterrey, Queretaro, and Tijuana rank in the first quintile of the distribution (see Figure 6.10). Low growth municipalities, such as Cuernavaca, Culiacan, and Mazatlán also rank in the higher quintiles, probably due to good tax administration. Low-income municipalities, such as Campeche, Chilpancingo, Tepic, Veracruz, Xalapa, and Zacatecas, rank lower in the benchmark.

**FIGURE 6.10. TAXES PER CAPITA, 2016 (IN MXN)**



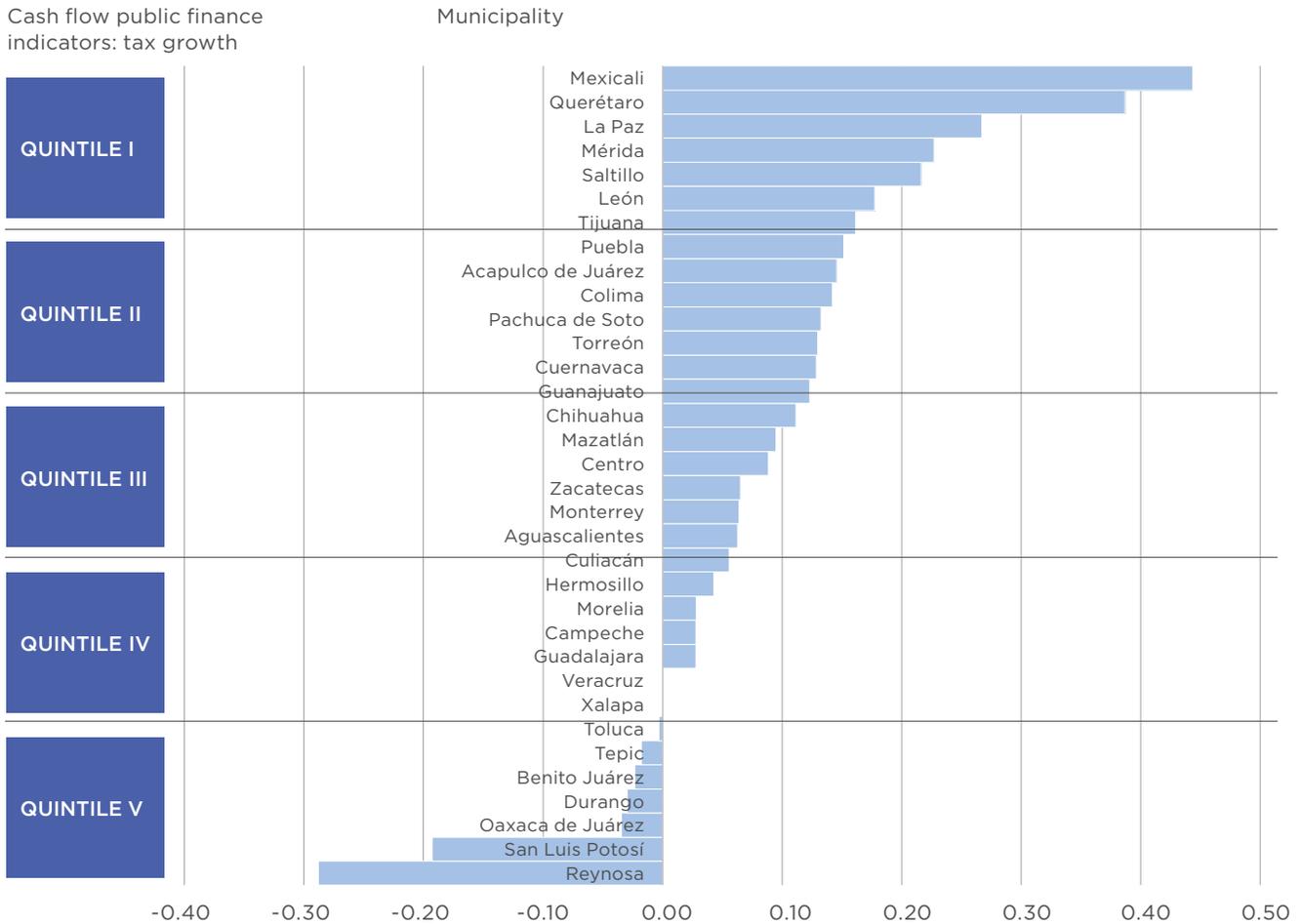
Source: INEGI (2016).

## Tax Growth

Tax growth is related to the behavior of the *predial*. High-growth municipalities and municipalities that improve their tax administration are expected to rank in the highest section of the benchmark. Merida, Queretaro, and Tijuana rank in the highest quintiles of both tax per capita and tax growth (see Figure 6.11), suggesting that growth has been sustained over time. However, not all high tax per capita municipalities are growing at a high rate, suggesting that these municipalities have stabilized their tax growth. Other municipalities that are improving tax collection are mid-size municipalities with positive economic performance indicators, such as La Paz, Leon, Mexicali, Puebla, and Saltillo, suggesting a link between the economy and tax evolution.

In the lower section of the benchmark is a mixture of high-income and low-income municipalities with negative growth. Benito Juarez (Cancun) ranks among municipalities with the highest levels of taxation per capita, suggesting a deterioration of tax efficiency.

FIGURE 6.11. TAX GROWTH RATE, 2015-16



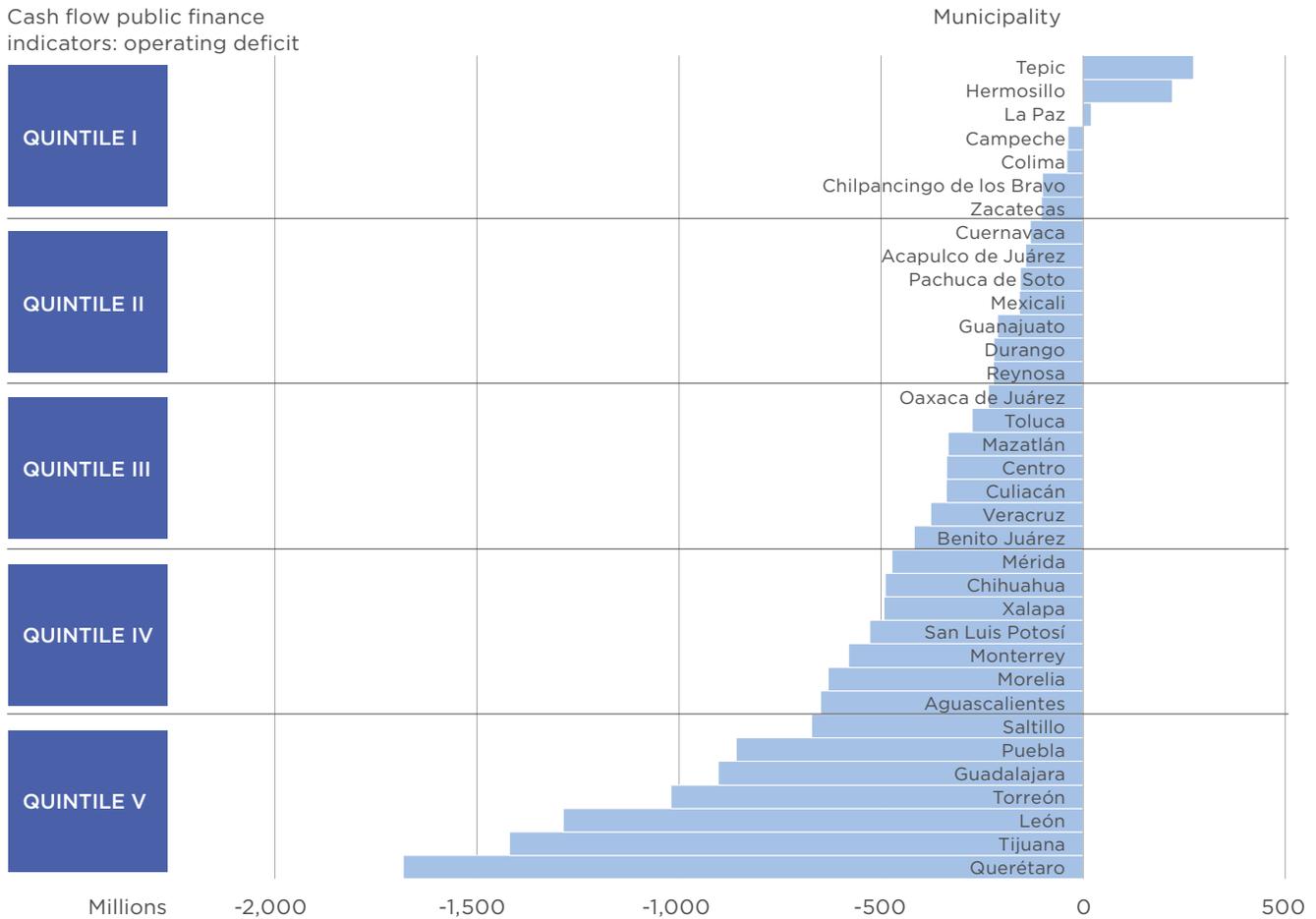
Source: INEGI (2016).

### Operating Deficit

Operating deficit is a metric about the fiscal sustainability of municipalities, since a deficit indicates a municipality’s inability to finance its most basic operations, including public infrastructure. The dependence on federal grants and the broken link between expenditure and revenues makes it difficult to predict a priori the behavior of the benchmark. However, in general, to see high income and good administrated municipalities should rank in the lower part of the benchmark (i.e., they should have a lower deficit).

Figure 6.12 shows that high-income municipalities such as Guadalajara, Leon, Puebla, Queretaro, Tijuana, and Saltillo rank in the lower part of the benchmark, with high operating surpluses. Hermosillo, La Paz, and Tepic are the only municipalities with a deficit; therefore, they finance their operations with public debt or accounts payables. Campeche, Chilpancingo, Colima, and Zacatecas have the lowest operating surpluses. There is no clear connection between those municipalities; however, a possible common denominator could be a deficient public administration, among other factors.

**FIGURE 6.12. OPERATING DEFICIT, 2016 (IN MXN MILLION)**



Source: INEGI (2016).

## Net Financial Assets

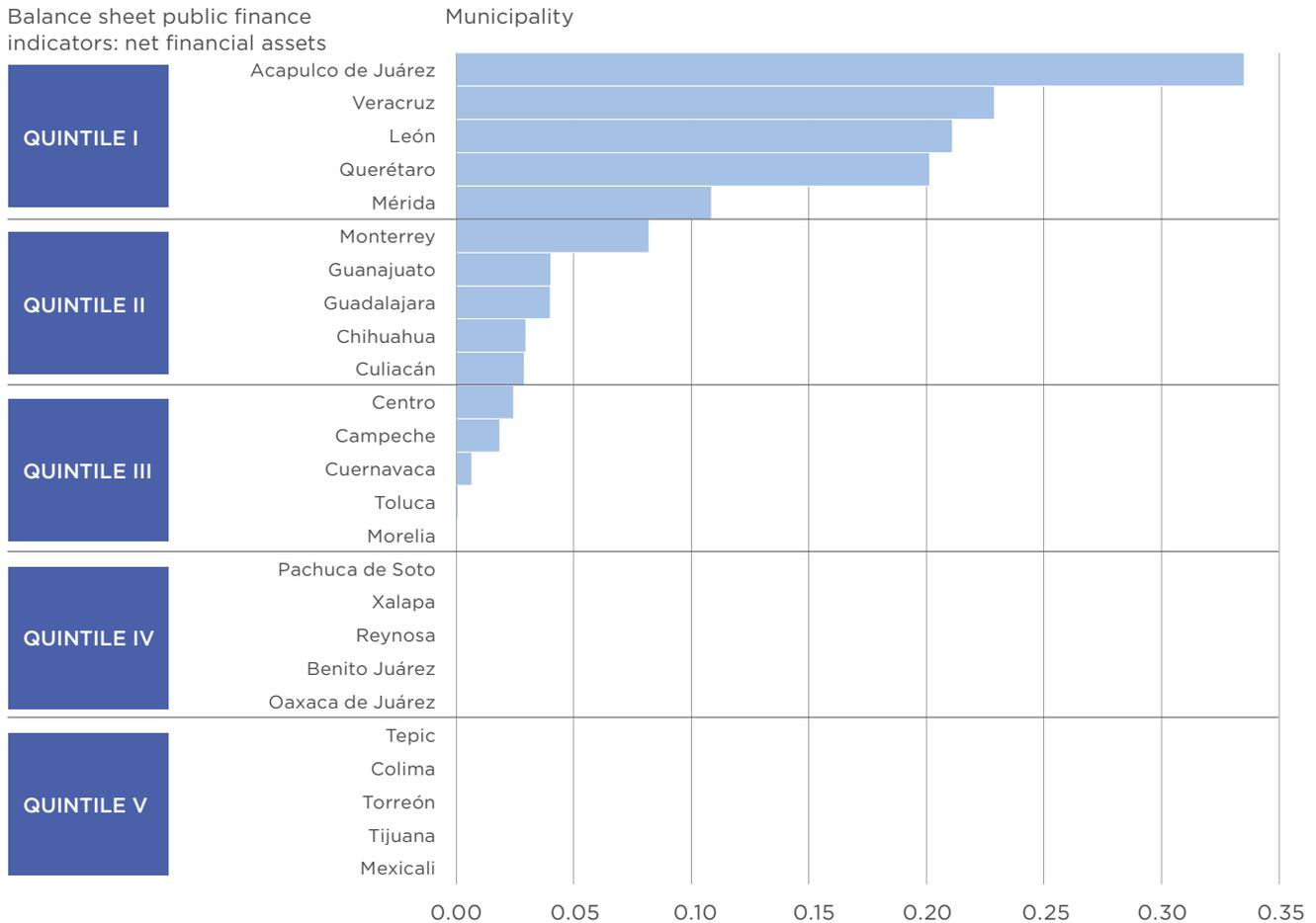
Financial assets include short and long-term municipal investments. Typically, these investments are the result of temporary imbalances in budget programming at the end of the year. For example, a payment of a public contractor might be committed in December, but the public work is to be delivered by January of the following year. If by December 31 these resources are in a bank account, the municipality will report them as an investment. In January, the treasury will use these funds to pay the contractor, and by February the financial assets will be zero.

An exception to this behavior are debt reserves. Some financial structures of municipal public debt require municipality to maintain approximately three months of interest and principal payments on their balance sheets. These reserves are reported as long-term investments. Typically, pension funds of municipalities are registered off the balance sheet; therefore, high financial assets are not reported as permanent assets.

On the other hand, financial liabilities include public debt, both with banks and the debt markets. These can include short-term debt that is used to finance short-term budget imbalances as well as long-term debt that is used to finance public investment. Until 2016, municipalities were required to repay the totality of short-term debt by the end of each fiscal year; therefore, public financial statements include only long-term debt.

The net financial asset indicator reflects the behavior of short-term budget imbalances rather than the capacity of the municipality to match public debt with its financial assets. From the municipalities that rank the highest in the benchmark (see Figure 6.13), only Queretaro, Leon, and Guadalajara keep large operating surpluses, suggesting that they might be keeping large financial assets for reasons not related to temporary budget imbalances. However, these municipalities do not exhibit large real assets; therefore, this indicator might be suggesting that they are not able to target these assets to public investment. Most of the municipalities reporting zero are reporting zero financial investment on their balance sheets. This is not necessarily a bad performance indicator, but rather a reflection of good budget planning.

FIGURE 6.13. NET FINANCIAL ASSETS RATIO, 2016



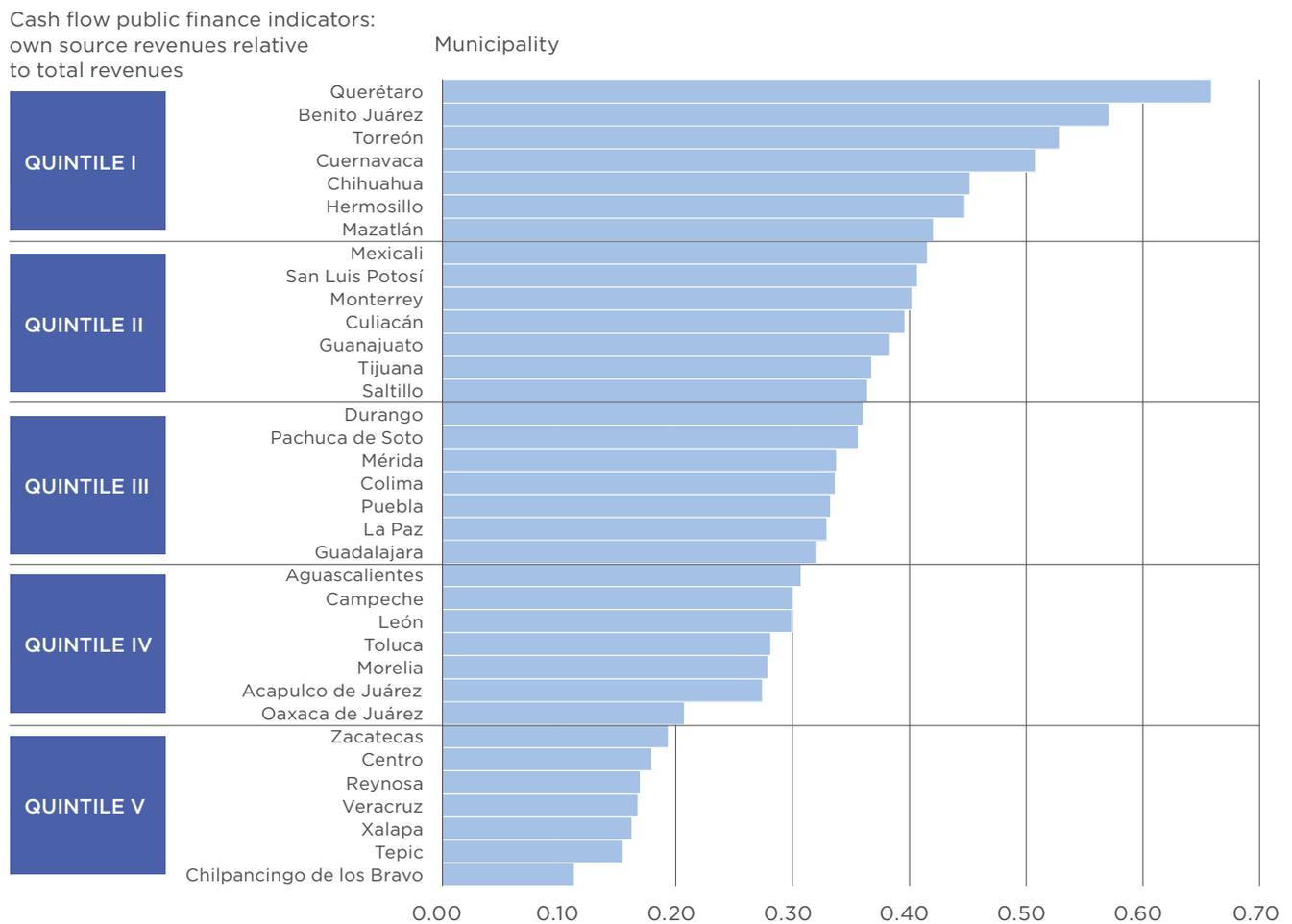
Source: INEGI (2016).

### Own-Source Revenues Relative to Total Revenues

Own-source revenues account for less than 25 percent of total municipal revenues at the national level. They include taxes, municipal services fees, and fiscal penalties. A large contribution of federal grants is a negative incentive to increase own-source revenues. Since municipalities can finance their operations solely with these revenues, they do not have an incentive to enforce the payment of municipal services, such as water and sanitation fees. Moreover, since the municipal authorities are only in office for three-year terms, there is little incentive to tax local economic agents.

As expected, the municipalities with the best position in the benchmark are those with high income, urbanization, and land value, such as Benito Juárez, Cuernavaca, Queretaro, and Torreon (see Figure 6.14). Low economic development municipalities, such as Chilpancingo, Tepic, and Xalapa rank lower on the distribution. It is interesting to note that high-expenditure municipalities such as Campeche and Oaxaca rank in the lowest quintiles, suggesting that federal grants, rather than own-source revenues, lead expenditures.

**FIGURE 6.14. OWN-SOURCE REVENUES RELATIVE TO TOTAL REVENUES, 2016**



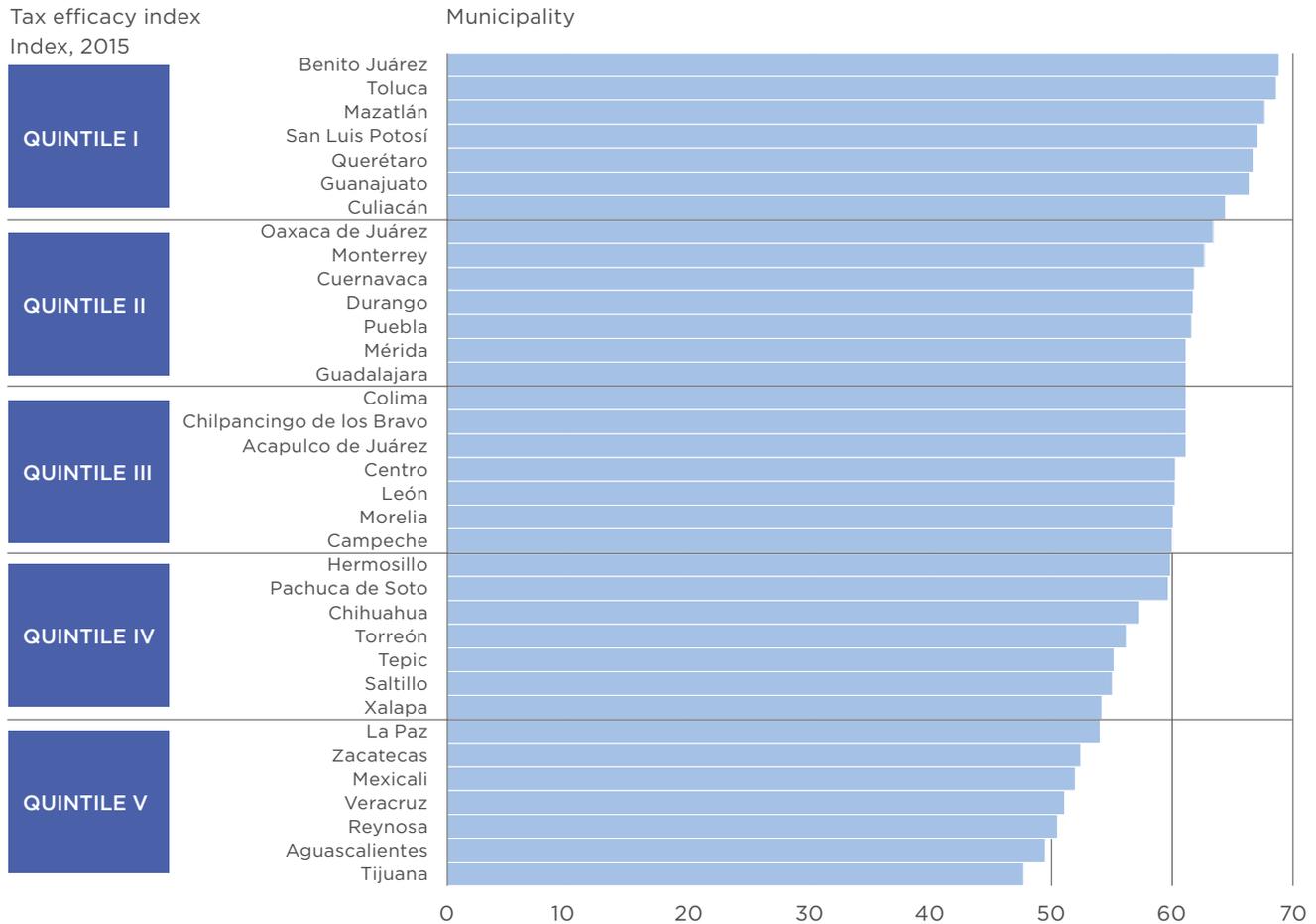
Source: INEGI (2016).

### Taxes Receivable Relative to Taxes Levied

Municipal governments do not publish data on tax compliance, and no figures on municipal tax evasion are available at the national level. Moreover, municipalities are reluctant to publish these data for political reasons. Yet, it is possible to characterize the revenue performance of municipalities indirectly. As mentioned, in Mexico the most important tax revenues at the municipal level are real estate taxes. This study collects data about the physical characteristics of dwellings at municipal level and regresses them against actual real estate tax collection. The difference between the actual real estate tax collection and the econometric projections can be used as a measure of performance respect to the tax base (see the Methodological Annex at the end of this chapter).

Figure 6.15 shows that the municipalities with the highest revenue performance are Benito Juárez, Guanajuato, Mazatlán, San Luis Potosí, Querétaro, and Toluca. It is not surprising that these municipalities also rank high on other revenue-related indicators. On the other hand, lower-performing municipalities are Aguascalientes, La Paz, Mexicali, Reynosa, Tijuana, Veracruz, and Zacatecas. Given the characteristics of their tax bases, these municipalities should have higher tax collection; therefore, evasion might be higher.

FIGURE 6.15. REVENUE PERFORMANCE INDEX

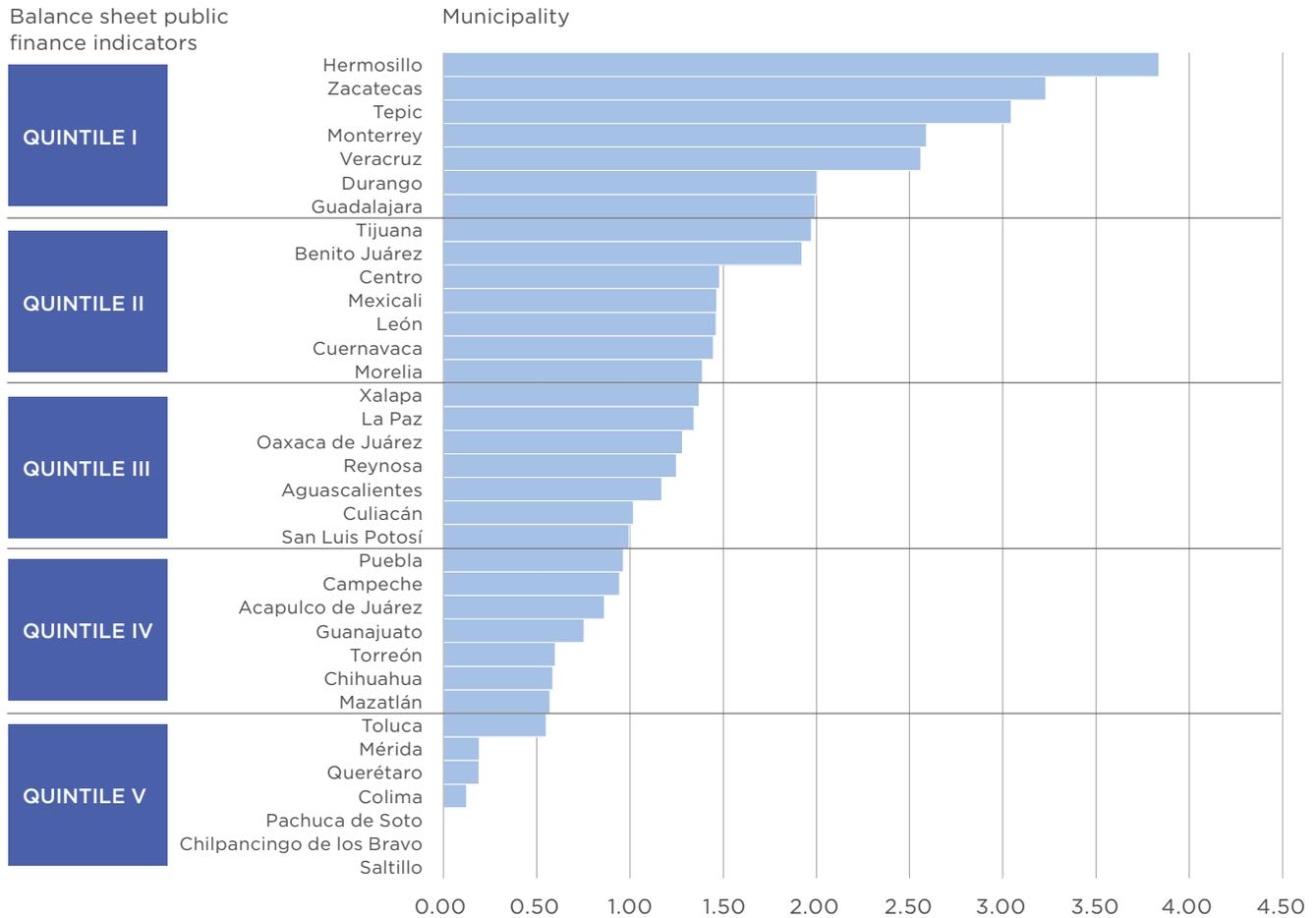


Source: Authors' calculations.

### Debt-to-Tax Ratio

As shown in Figure 6.16, the municipalities with the highest debt-to-tax ratios are Hermosillo, Monterrey, Tepic, Veracruz, and Zacatecas. Those with the lowest ratios are Colima, Merida, and Queretaro. There are three municipalities with no public debt: Chilpancingo, Pachuca, and Saltillo. At first glance, the position in the ranking cannot be related to an intrinsic socioeconomic feature of the municipality. Rather, the ranking reflects internal public finance management decisions in terms of debt management, and tax collection enforcement.

FIGURE 6.16. DEBT-TO-TAX RATIO, 2016

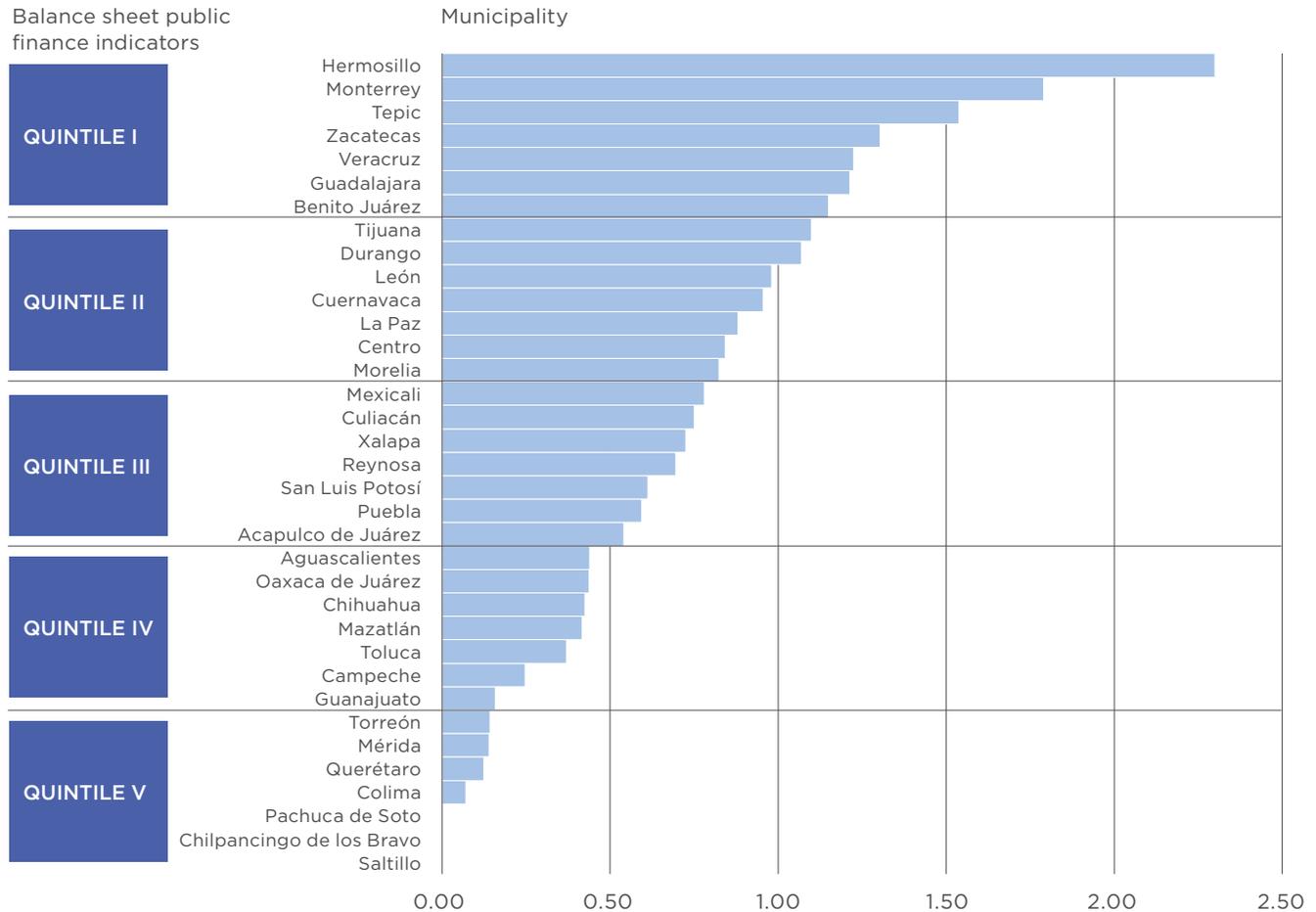


Source: INEGI (2016).

### Debt Charges Relative to Own-Source Revenues

The municipalities that are located in the lower part of the benchmark have healthy revenues and low debt (see Figure 6.17). A peculiarity of Mexico is that some federal revenues can be used to pay debt service. Therefore, a bad position in these two benchmarks does not necessarily correspond to a lack of payment capacity. However, in the event of an unexpected decrease in federal revenues, a bad position in these two benchmarks raises the credit risk of the municipality. For this reason, both credit rating agencies and the Ministry of Finance emphasize this indicator.

FIGURE 6.17. DEBT CHARGES RELATIVE TO OWN-SOURCE REVENUES, 2016



Source: INEGI (2016).

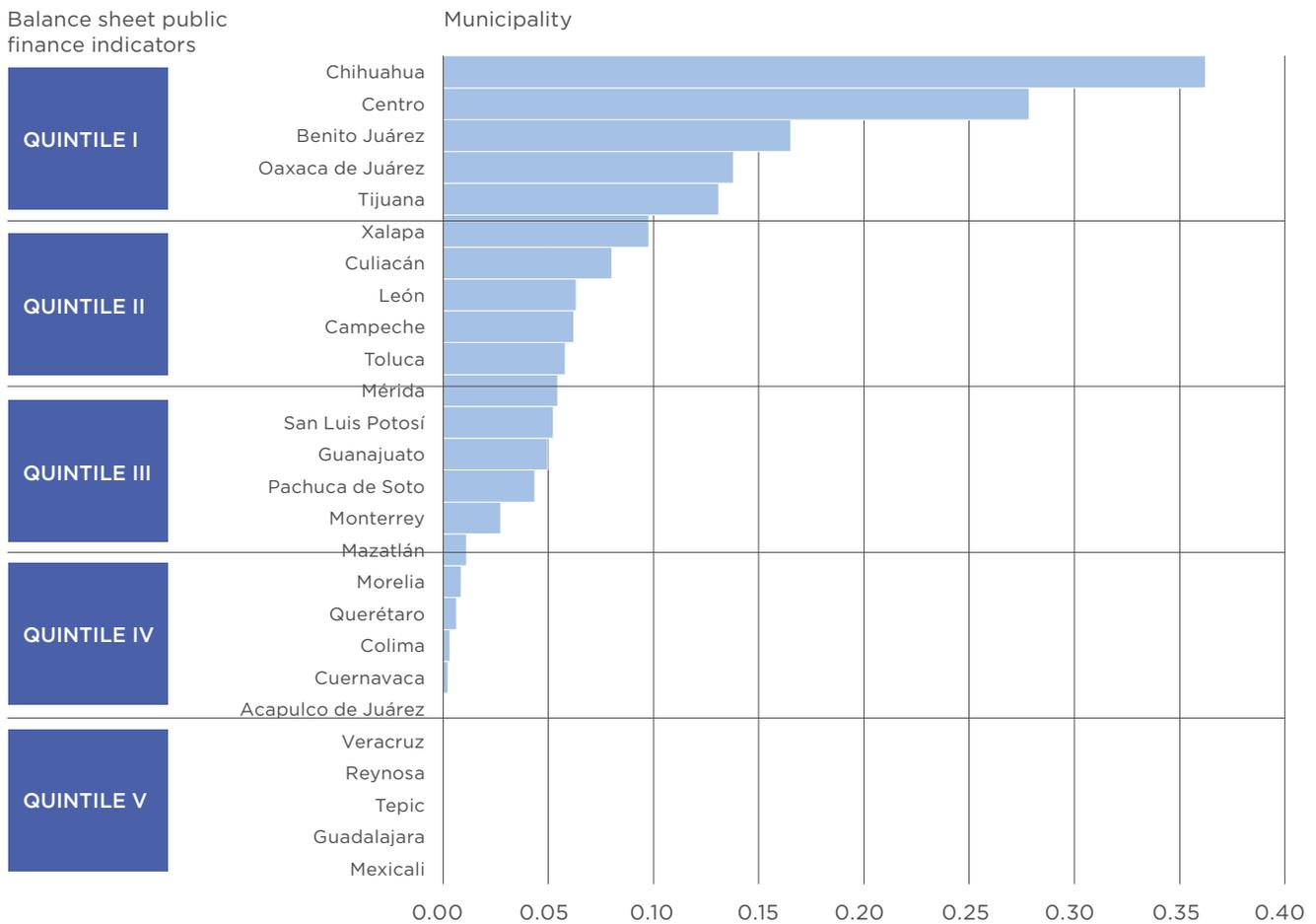
### Asset Consumption Ratio

The asset consumption ratio is estimated as the ratio between depreciation and real assets. Real assets include municipal real estate (e.g., public buildings), infrastructure, and equipment (e.g., vehicles). This is not a market-based valuation of an accounting valuation based on standard methodology applied to all municipalities. Depreciation, on the other hand, is estimated following accounting standards.

Asset consumption ratio is an indicator that should approximate the

depreciation rate of municipal investments. The estimated values range between 16 and 5 percent for most of the municipalities with observed data (see Figure 6.18). Chihuahua and Centro report a ratio of ~35 percent and ~25 percent, respectively. At least 11 municipalities report depreciation rates close to zero. These observations might be accounting for bad reporting practices, rather than a real zero depreciation. The average value of the ratio, excluding the extreme values, is 7 percent.

**FIGURE 6.18. ASSET CONSUMPTION RATIO, 2016**



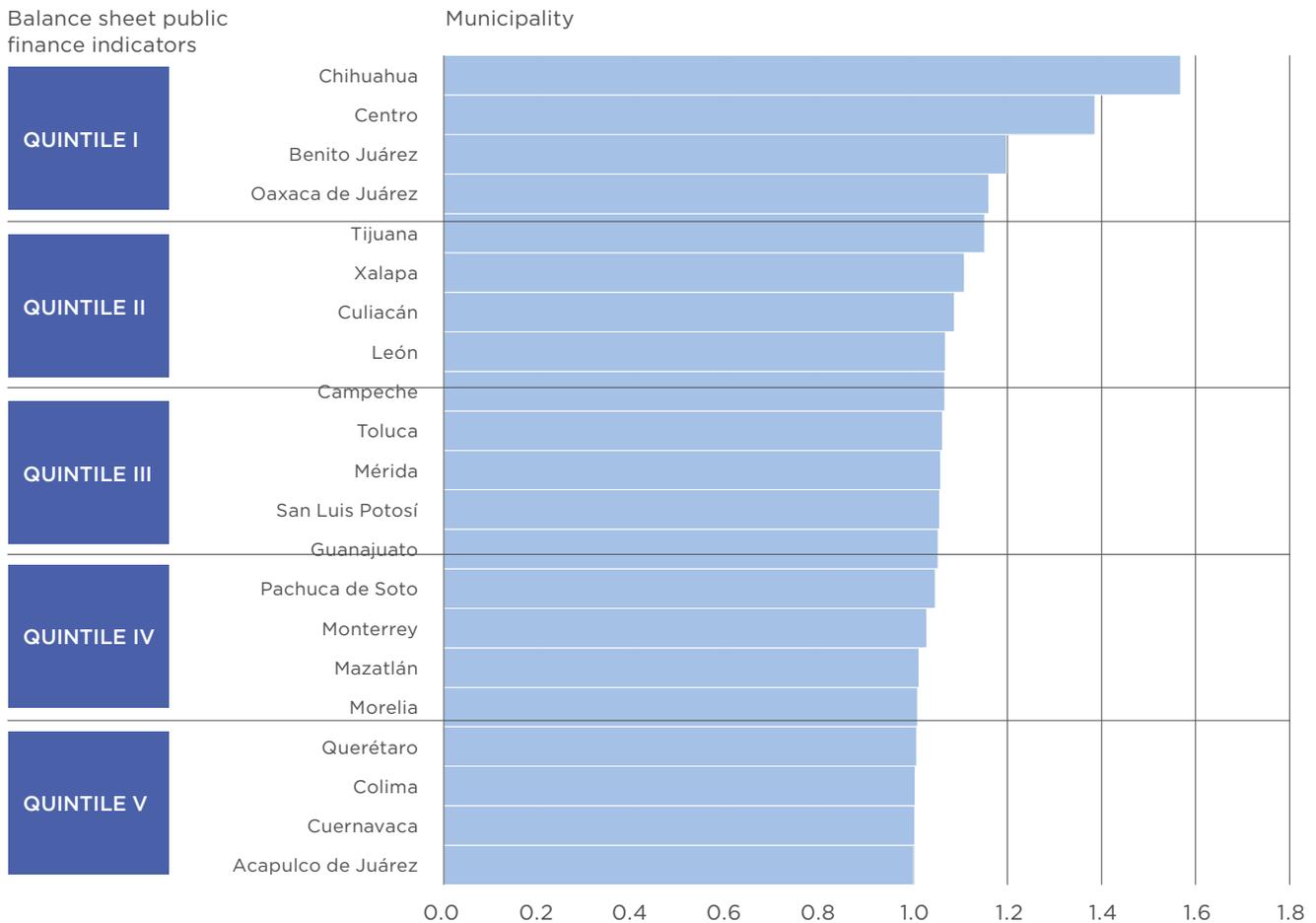
Source: INEGI (2016).

### Extent of Investment in Capital Assets

The extent of investment in capital assets provides a benchmark of the extent to which municipalities have been investing in capital assets by comparing the original cost of the capital assets with the original cost minus accumulated depreciation. To estimate the indicator, we use the value of municipal assets, including real estate, infrastructure, and equipment, and the accumulated depreciation reported in the annual financial statements. As mentioned above, the shortcoming of this assessment is that the value and depreciation of physical asset are accounting metrics that do not necessarily consider the economic value of the assets. To preserve the value of its assets, a municipality would have to invest at least the amount of depreciation each year. An indicator that is close to 1 would mean the municipalities are preserving the full value of its assets by investing in maintenance and repairs. An indicator greater than one would denote that the municipality is not investing enough to compensate for depreciation.

Figure 6.19 presents the estimated value of the indicator for 21 municipalities: nine municipalities do not report depreciation, therefore, the value of the indicator is 1; four municipalities do not report the value of their assets. The municipalities with ratio higher than 1.10 are Benito Juarez, Centro, Chihuahua, Oaxaca, Tijuana, and Xalapa. These municipalities have large depreciation rates, and investment is not sufficient to compensate for them. On the other hand, Acapulco, Cuernavaca, Colima, Querétaro, and Morelia have ratios below 1.01.

FIGURE 6.19. EXTENT OF INVESTMENT IN CAPITAL ASSETS, 2016



Source: INEGI (2016).

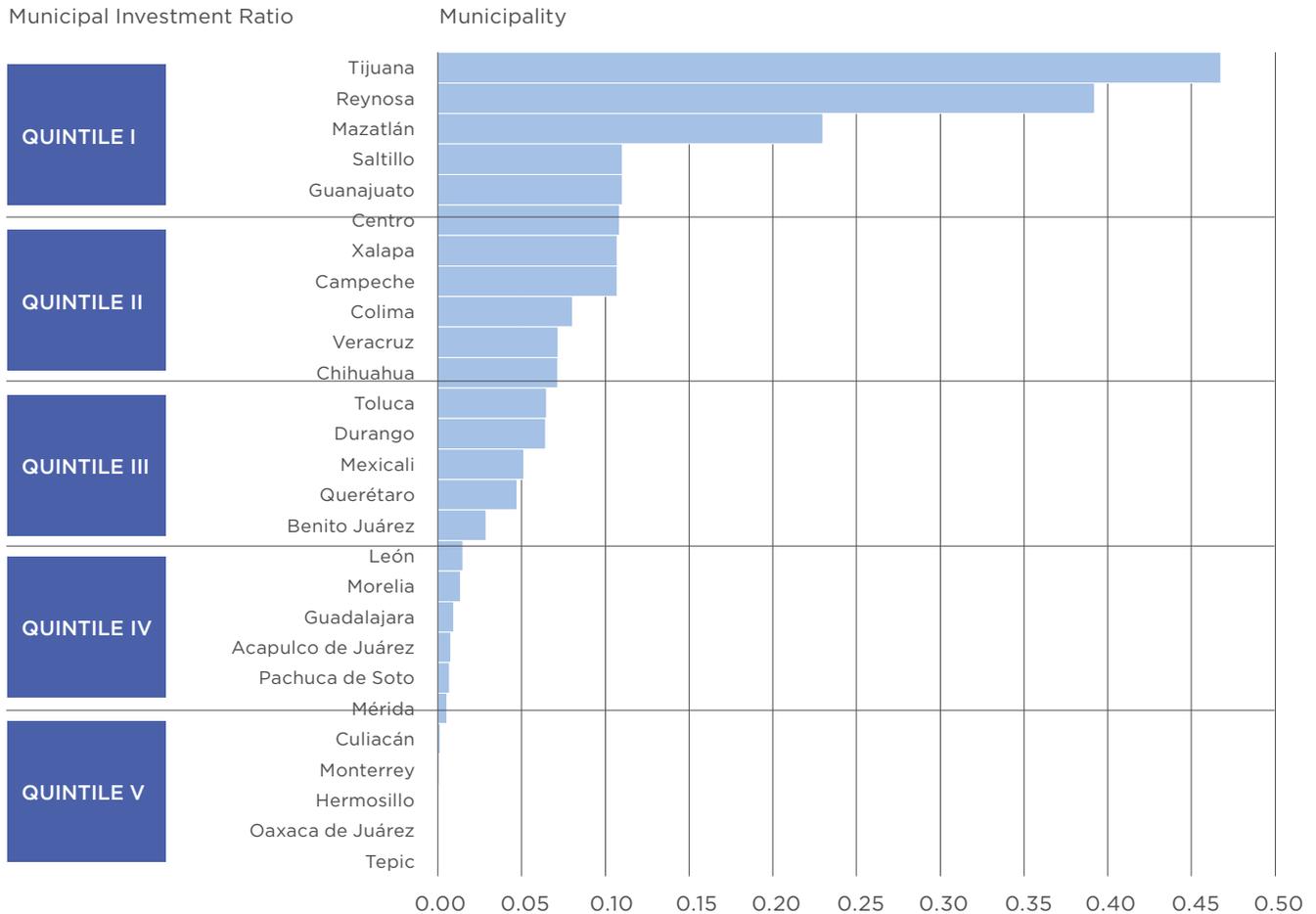
### Additional Proxy Variables: Municipal Investment Ratio

The asset consumption ratio and the extent of investments in capital assets depend on a correct estimate of asset depreciation. Depreciation follows a linear accounting approach; thus, the reported values do not represent the true market value of the municipal nonfinancial assets. Therefore, these indexes might be underestimating infrastructure investments, particularly in municipalities that carried out large infrastructure projects in the past that demand low maintenance investments.

To complement the analysis of fiscal health, we propose an investment ratio index, estimated as the ratio between public investment and real assets. Public investment is the cash flow investment budgeted by the municipality, and real assets include municipal real estate (e.g., public buildings), infrastructure, and equipment (e.g., vehicles). This indicator is a metric of the growth of municipal real assets. A large value indicates that the municipality is heavily investing in infrastructure and other municipal real assets.

Figure 6.20 shows ratios ranging between 0 and 45 percent. Three municipalities have a ratio above 20 percent, which may reflect the execution of large public investment works during the observation period. Most of the municipalities exhibit a ratio between 5 and 10 percent. In this range there are large, medium, and small cities, which makes it difficult to discern a clear pattern. Finally, the municipalities with a ratio below 5 percent are low-income municipalities with large operating deficits, suggesting that this value corresponds to low absolute values of investment, rather than high real assets.

FIGURE 6.20. INVESTMENT RATIO INDEX, 2016



Source: INEGI (2016).

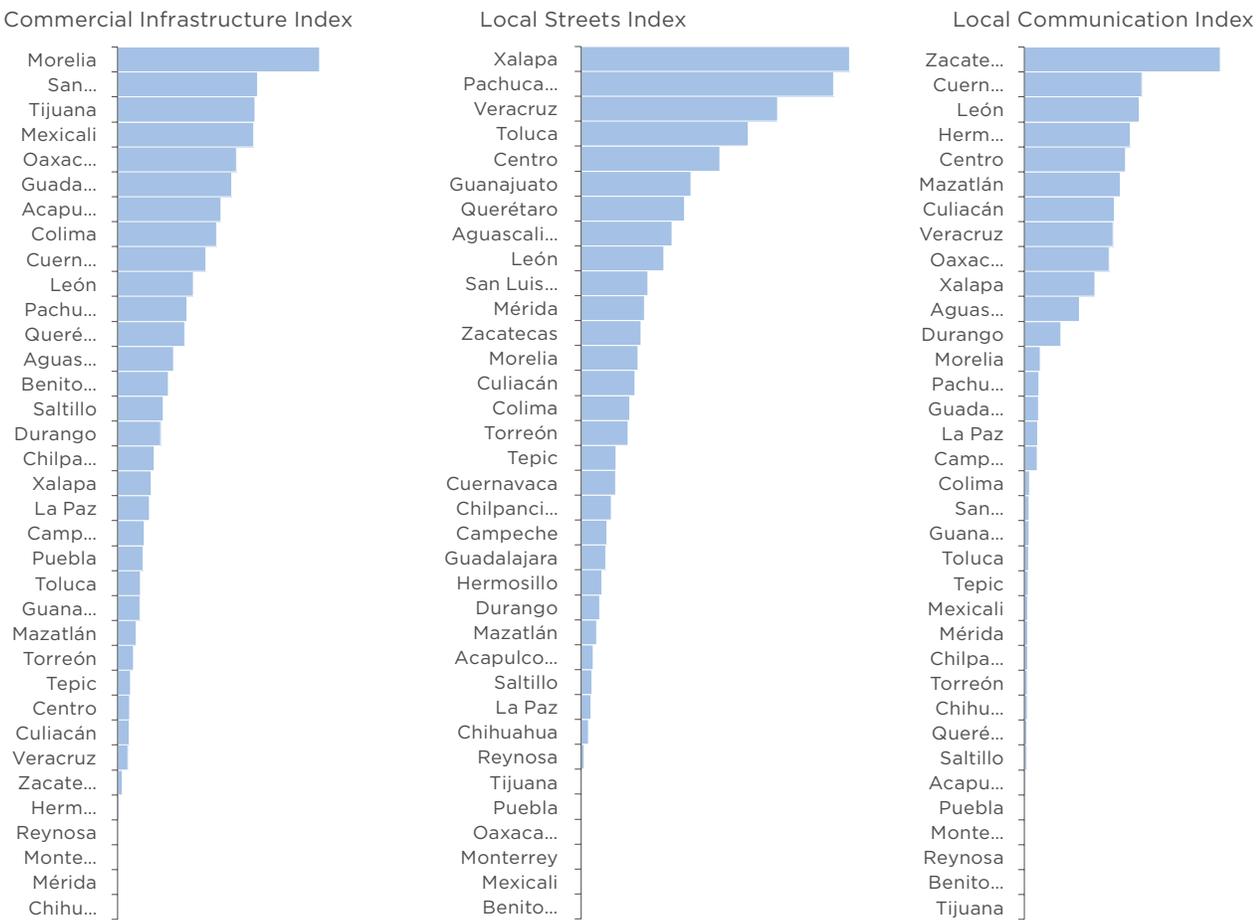
Additionally, we estimate a set of municipal infrastructure indexes that can be used to test whether the value of physical infrastructure estimated in the municipal balance sheet is correlated with a physical metric of infrastructure. Municipal infrastructure typically includes local streets and bridges, water and sanitation, public markets, parks, police stations, and urban equipment and infrastructure.

We build four indicators that can be used as a proxy to measure the stock of municipal infrastructure. First, we build a commercial infrastructures index that includes the number of municipal market places per capita available in any given municipality. Second, we construct a local street

index that is estimated as the length of local streets per surface area in a given municipality. And third, we estimate a local communications index as the number of municipal open internet access points and internet community centers per inhabitant. All indexes are normalized such that they take values between 0 and 100, with 0 being the lowest value of the index and 100 the highest. The data used to estimate these indexes are from INEGI.

Figure 6.21 shows that in general, small and medium-sized municipalities rank better than large municipalities. Infrastructure investment may be higher in large municipalities in absolute terms, but when the size of the municipalities is considered, the relative stock of infrastructure is low.

FIGURE 6.21. INFRASTRUCTURE INDEXES



Source: Authors' estimation.

# Municipal Investment, Physical Assets, and Fiscal Balances

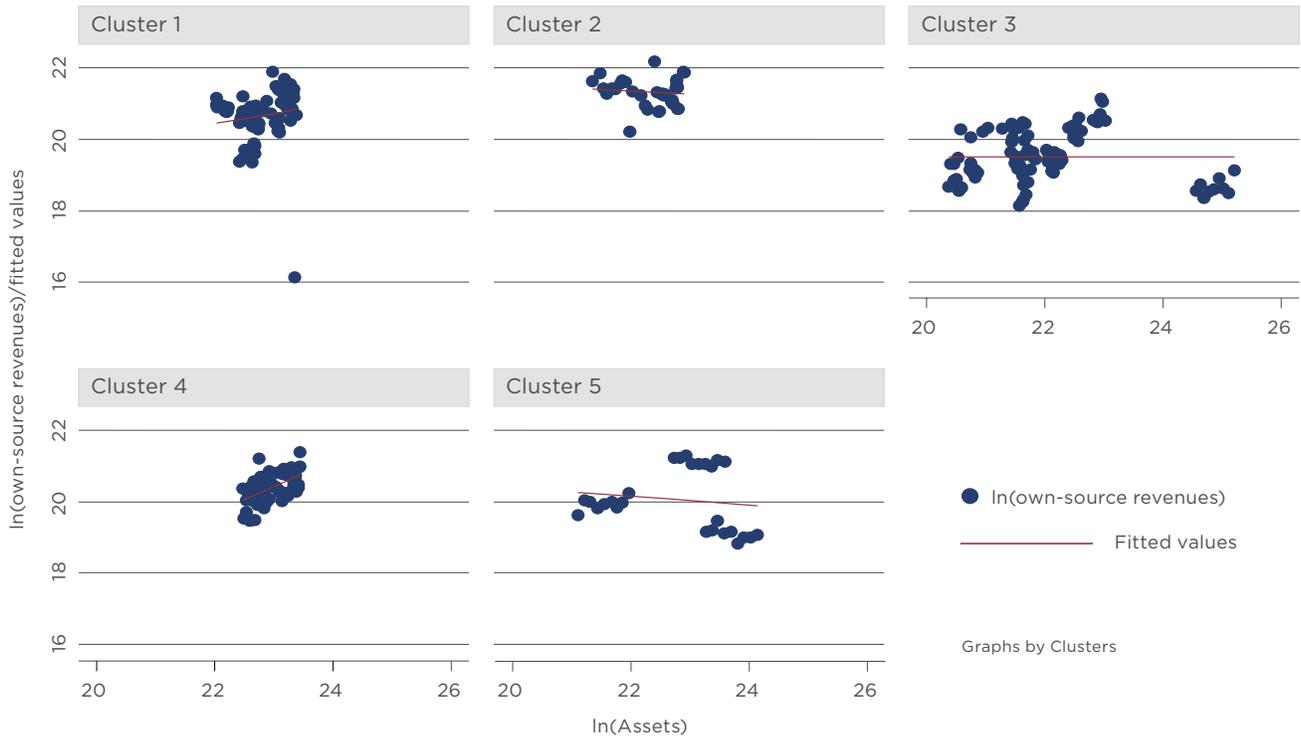
This section presents an econometric analysis to investigate the relationship between municipal investment, physical assets, and budget balances. The analysis allows us to understand for the first time the relationships and tradeoffs between public finance and the assets and liabilities of municipalities in Mexico to elaborate a more holistic vision of the country's fiscal health. The objective is to understand if municipalities, in order to achieve short-term balance budgets, are compromising the quantity and quality of municipal services as well as the state of municipal infrastructure, which could impact long-term fiscal health.

We use a time series analysis using the reconstructed physical value of infrastructure (see the Methodological Annex at the end of this chapter) and selected public finance variables. We segment the time series analysis for each cluster. The cluster segmentation allows us to identify possible relationships within the clusters that are not apparent to the general public.

Figure 6.22 presents the correlation analysis between own-source revenues and the value of physical assets. It shows that there is no homogeneous relationship across all clusters. Clusters 1 and 4 show a positive ratio. The historical trend indicate that both clusters show low indebtedness and a low growth of their federal grants. These trends suggest that the fiscal strategy followed by these municipalities is to fund infrastructure with their own-source revenues rather than debt. This strategy might arise because own-source revenues are less bankable than federal revenues. Therefore, debt backed by own-source revenues is more expensive. For the other clusters, there is no clear relationship between these variables.

FIGURE 6.22. CORRELATION OF PHYSICAL ASSETS WITH OWN-SOURCE REVENUES

Real MXN Base 2016 in natural logs

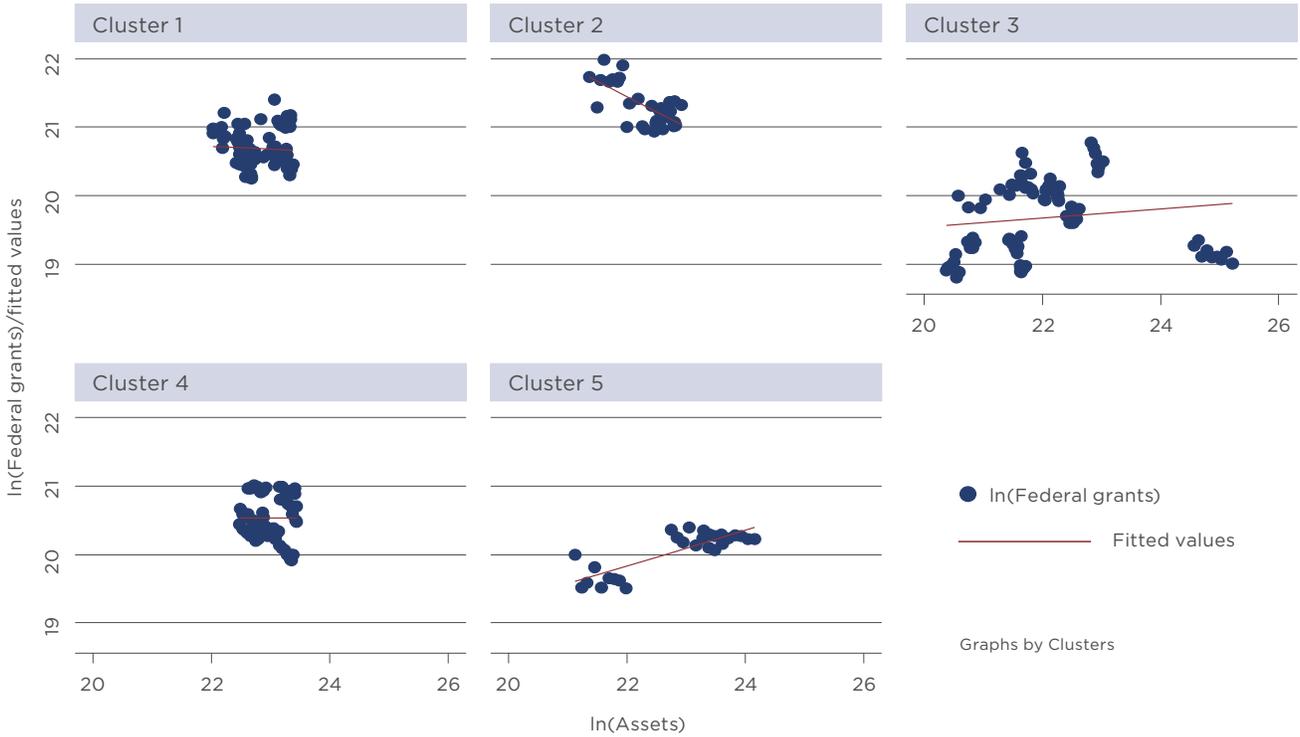


Source: INEGI (2016).

Federal grants and the value of physical assets are positively correlated for municipalities in Clusters 1, 3, and 5 (see Figure 6.23). These clusters show a low growth of their federal grants. This suggests that the growth in federal grants is perceived as non-recurrent revenue that can be used to fund public investment but not current expenditure. Clusters 2 and 4 present a negative correlation. Higher federal grants can be allocated exclusively to finance current expenditure (e.g., public safety). However, the most likely explanation is that higher federal grants reduce the incentives to collect own-source revenues, which are the most likely funding source for public investment.

**FIGURE 6.23. CORRELATION OF PHYSICAL ASSETS WITH FEDERAL GRANTS**

Real MXN Base 2016 in natural logs



Source: INEGI (2016).

In the case of operating expenditure, the analysis shows a positive relationship for all clusters except for Cluster 2 (see Figure 6.24). This can be interpreted as no evidence of a tradeoff between current expenditure and the stock of physical assets. Investment is revenue driven, and expenditure optimization does not necessarily play a role in the investment process. High operating expenditure is highly correlated with total revenues. The positive relationship between operating expenditure and physical assets might suggest that the larger the municipality, the larger their revenues and expenditure, and the larger their assets.

**FIGURE 6.24. CORRELATION OF PHYSICAL ASSETS WITH OPERATING EXPENDITURE**

Real MXN Base 2016 in natural logs



Source: INEGI (2016).

The correlation between debt service and the value of physical assets is not homogeneous across clusters (see Figure 6.25). A negative correlation suggests that debt payments crowd out public investment. A positive correlation suggests high levels of indebtedness that have financed public investment. The sign of the correlation would depend on several factors, such as the growth and levels of operating revenues and expenditure. The relevant implication is that the relationship between debt service and the value of physical assets is neither simple nor direct.

FIGURE 6.25. CORRELATION OF PHYSICAL ASSETS WITH DEBT SERVICE

Real MXN Base 2016 in natural logs



Source: INEGI (2016).

Lastly, the analysis does not find evidence of a relationship between operating balance and the value of physical assets (see Figure 6.26). Despite the particular trajectory of revenues and expenditures, municipalities are achieving fiscal balance by applying a mixture of strategies, which include strengthening own-source revenues, public debt, and adjusting public investment to achieve their fiscal objectives. As a result, there is no apparent tradeoff between public finance balances and physical assets.

FIGURE 6.26. CORRELATION OF PHYSICAL ASSETS WITH OPERATING BALANCE

Real MXN Base 2016 in natural logs



Source: INEGI (2016).

We also carry out an econometric analysis to determine the effects of these variables on the value of physical assets. The analysis uses historical data of the 35 municipalities in the sample for the years 2008–16. As a proxy for the value of physical assets, we use the reconstructed series of physical assets.

Table 6.1 presents the results of an econometric analysis that uses the estimated value of physical assets in natural logarithm as a dependent variable, and the aforementioned public finance cash flow variables as explanatory variables. The econometric analysis estimates the effects using a random effect panel data regression. Estimations are made for each cluster to discriminate any possible change in the value of the coefficients.

TABLE 6.1. ECONOMETRIC ANALYSIS

	SAMPLE	CLUSTER 1	CLUSTER 2	CLUSTER 3	CLUSTER 4	CLUSTER 5
OWN-SOURCE REVENUES	0.0381	0.1144	0.8907	0.2197	0.4754	-1.8504
	(0.750)	(3.840)	(1.070)	(1.110)	(2.500)	(-3.470)
FEDERAL GRANTS	-0.2914	-0.4423	-1.3320	-0.0637	-0.9538	1.1389
	(-2.430)	(-5.470)	(-1.600)	(-0.260)	(-4.310)	(1.080)
RATIO OWN-SOURCE REVENUES/FEDERAL GRANTS	-0.0802	-0.2174	-0.6181	-0.2538	-0.5580	1.0206
	(-1.130)	(-4.400)	(-0.880)	(-1.280)	(-2.490)	(1.750)
OPERATING EXPENDITURE	0.2716	0.0859	-0.5363	0.0093	1.0841	1.7406
	(2.730)	(0.970)	(-0.690)	(0.050)	(5.420)	(2.280)
OPERATING EXPENDITURE	0.2716	0.0859	-0.5363	0.0093	1.0841	1.7406
	(2.730)	(0.970)	(-0.690)	(0.050)	(5.420)	(2.280)
DEBT SERVICE	-0.0131	0.0202	-0.0217	-0.0208	-0.0293	0.0449
	(-1.410)	(1.930)	(-0.360)	(-1.290)	(-1.610)	(0.750)
CONSTANT	22.1301	27.5728	44.7103	19.2868	10.2515	-2.1726
	(11.550)	(16.110)	(4.630)	(5.960)	(3.780)	(-0.260)
N	270	70	31	83	59	27
R <sup>2</sup>	0.0502	0.0408	0.5541	0.0424	0.6267	0.8571
WALD	14.28	53.69	29.83	9.06	87.29	119.95

Source: Authors' elaboration.

The following are the results that appeared in the correlation analysis that are complemented with the econometric analysis:

- The relationship between public finance indicators and the stock of physical assets is not homogeneous across municipalities. Clustering municipalities in terms of their intrinsic economic and social characteristics shows that the estimated relation between public finance indicators and the stock of physical assets varies significantly across clusters. Each cluster follows a different fiscal strategy. These results confirm the patterns identified in the cross-section analysis that suggested complex underlying relations.

- It appears that investment and hence physical assets are driven by revenue rather than by optimizing expenditure. The availability of funds, such as own-source revenues or extraordinary federal grants, and the interaction between these two variables are correlated with the stock of physical assets. However, despite the apparent importance of own-source revenues, the econometric analysis finds a positive correlation with the value of physical assets, but the impact is not highly statistically significant.
- There is a negative and significant relationship between federal grants and the value of physical assets. The most likely explanation is that higher federal grants reduce the incentives to collect own-source revenues, which are the most likely funding source for public investment.
- High operating expenditure is highly correlated with total revenues. The positive relationship between operating expenditure and physical assets might suggest that the larger the municipality, the larger their revenues and expenditure, and the larger their assets.
- Finally, there is no evidence of a relationship between operating balance and the value of physical assets. As a result, there is no tradeoff between operating balances and physical assets. The determinants of investment on physical assets are the fiscal strategies of the municipalities (i.e., own-source revenues collection strategy, debt policy, and investment policy).

These stylized facts suggest that each municipality follows complex fiscal rules depending on its socioeconomic profile. These fiscal rules are summarized in four archetypes in Table 6.2. In this table, we characterize municipalities according to the growth of their own-source revenues and their federal revenues.

In the first quadrant are municipalities with low growth of own-source revenues and low growth of federal revenues. Since their revenues are not growing, any fiscal adjustment for these municipalities ought to be carried out through their investment levels. If these municipalities face a bad year in terms of revenues or an unexpected shock on expenditure, they cannot afford to get debt, since no revenue surplus is available for this purpose. The municipalities in this quadrant belong to Cluster 1 and 2.

In the lower right quadrant are two municipalities with low growth of federal revenues and high growth of own-source revenues. These municipalities can follow two strategies depending on their demographic profile. Low population growth municipalities do not get debt, therefore, any adjustment is carried out through investment and expenditure. For these municipalities, own-source revenues are the main source for funding investment. A shock will reduce this possibility and in an extreme circumstance, they would also have to reduce current expenditure. Funding investment with debt is not the best strategy, since their strength is in own-source revenues and these types of revenues are not as safe as federal revenues as a guarantee for public debt. Municipalities in Cluster 3 are in this quadrant.

On the other hand, high population growth municipalities, despite having the same revenue profile, finance investment with public debt, and fiscal adjustments are carried out by increasing debt. Since these are high population growth municipalities, the expectation is that eventually federal grants will increase; therefore, the incremental federal grants are used to service debt. Municipalities in Cluster 5 are in this quadrant.

Finally, in the lower right quadrant are municipalities with low growth of own-source revenues and high growth of federal revenues. These municipalities fund investment with debt, since the incremental revenues of their high growth federal revenues can be used as a high-quality guarantee for public debt. These municipalities do not have to carry out fiscal adjustments to accommodate investment. Municipalities in Cluster 3 are in this quadrant.

Despite the particular trajectory of revenues and expenditures, municipalities appear to have set an operating balance target, and in the long run there do not appear to be systematic fiscal imbalances. The short period of municipal administration (three years), the constant change in ruling municipal parties, and until recently the absence of reelection could explain these long-term fiscal balances. This pattern indicates that rather than a tradeoff between investment, assets, and operating balance, municipalities apply a mixture of fiscal strategies which include the strengthening of own-source revenues, public debt, and adjustment of public investment to achieve their fiscal objectives. As a result, the real tradeoff is between physical investments and the fiscal strategy of the municipalities (i.e., own-source revenues collection, debt policy, and investment policy).

TABLE 6.2. ARCHETYPES OF FISCAL RULES

	LOW GROWTH OF FEDERAL REVENUES	HIGH GROWTH OF FEDERAL REVENUES
LOW GROWTH OF OWN-SOURCE REVENUES	Fiscal adjustment through investment levels (Clusters 1 and 2)	
HIGH GROWTH OF OWN-OPEN SOURCE REVENUES	For low growth municipalities: Fiscal adjustment through expenditure and investment (Cluster 3)  For high growth municipalities: No fiscal adjustment, investment financed with public debt (Cluster 5)	No fiscal adjustment, investment financed with public debt (Clusters 3)

Source: Authors' elaboration.

The analysis does not find evidence of a relationship between operating balance and the value of physical assets. Despite the particular trajectory of revenues and expenditures, municipalities are achieving fiscal balance by applying a mixture of strategies, which include the strengthening of own-source revenues, public debt, and adjustment of public investment to achieve their fiscal objectives. As a result, there is no apparent tradeoff between public finance balances and physical assets.

## Conclusions

Municipalities in Mexico tend to follow fiscal strategies that allow them to meet their expenditure requirements and financial obligations. The trend is not to run large operating deficits and to balance the budgets, applying a mixture of strategies which include the strengthening of own-source revenues, public debt, and adjustment of public investment. An open question is the incentives that encourage municipalities to balance their operating budgets. The fact that municipal administrations last only three years, and that political competence is strong at the local level, might be important incentives for municipal administrations to achieve stable operating balances.

This chapter presented a detailed analysis of the relationship between public finance and municipal assets and public investment to understand whether municipalities are balancing their budgets at the cost of compromising

the quantity and quality of services provided and the state of municipal infrastructure. It finds that municipalities that have low revenues prefer to adjust other variables, mainly investment, rather than running deficits. Debt policy appears to depend upon the current capacity to generate surpluses through own-source revenues, rather than upon infrastructure needs and prospective revenues induced by new investments. Another important finding is that the characteristic of the federal fiscal system in Mexico delinks economic and fiscal performance and distorts balance sheet management.

At the individual level, there are very few municipalities with strong fiscal indicators. Most of the municipalities have mixed results. For example, we identified municipalities with negative operating balance performance but strong asset investment indicators, as well as municipalities that face a strong tradeoff between debt and investment. For some of these municipalities, keeping positive debt indicators is a priority, despite having weak investment indicators, while other municipalities follow the opposite strategy.

The heterogeneity and richness of Mexican municipalities do not permit a definitive determination of their fiscal health. Operating balances are in general balanced. However, this does not imply long-term equilibrium between expenditure and revenues over time. This is because municipalities might be making compromises on the quantity and quality of municipal services as well as the state of municipal infrastructure to achieve fiscal balances, which could compromise fiscal health in the long term. Future research should focus on the continuous updating and data collection of municipal indicators, expanding the sample to deepen the general results of the empirical analysis.

## Methodological Annex

To estimate the indicators, this study relies on an integrated municipal public finance database published by INEGI, collected under new public accounting standards adopted at the national level in 2015. INEGI has three large data sources that enable this organisation to characterize the demographic, economic, and public finance profile of every municipality in the country.

### ANNEX 3. MUNICIPAL DATA SOURCES

	DATA	EXAMPLE
1	Demographic	National census and inter-census surveys
2	Economic	Economic census and household surveys
3	Public finance	Income and expenditure dataset , shcp debt registry and municipal financial statements

Source: Authors' elaboration.

There are two main sources for demographic variables: the national census and the inter-census surveys, publicly available for the 2,446 municipalities. The national population census is carried out every ten years. The most recent one was conducted out in 2010. In the middle of the census period, INEGI carries out a broad population survey that includes the same variables of the national census. This inter-census survey is not a proper census that includes the totality of the population, but a nationwide sample. Nevertheless, it provides a good benchmark to understand general sociodemographic trends every five years. The most recent inter-census survey was carried out in 2015.

Regarding economic data, one of the most important datasets is the economic census, also produced by INEGI. This dataset is an exhaustive survey that presents economic data of every economic unit in Mexico defined as an individual production site. It includes gross production, GVA, private capital stock, intermediate consumption, and total number of workers. The economic census is carried out every five years. The most recent one was conducted in 2014.

Other data instruments help understand short-term trends. Labor statistics are collected at the city level for the largest cities in the country using

a monthly survey (National Survey of Occupation and Employment, or ENOE). CONAPO estimates annual population forecasts at the municipal level. INEGI publishes several annual and biannual surveys that include sociodemographic and economic characteristics of the population. However, few are representative at the municipal level.

Public finance statistics are not as well developed as other types of datasets for all levels of government. At the federal level, the Ministry of Finance publishes comprehensive data on revenues and budget. It publishes the budget in an open data format that includes detailed information on expenditure for every federal administrative unit. States and municipalities are mandated by law to publish minimal data on income, revenues, and public debt on their local websites. The Financial Discipline Law of 2016 has required all municipalities to publish quarterly data on the evolution of their local finances since 2018. Moreover, the country initiated the implementation of a national accounting system (Consejo Nacional de Actuaries, or CONAC) in 2008, which establishes accounting standards and minimal accounting requirements for all government entities: federal, state, municipal, and state-own enterprises.

Annex 4 presents the 15 indicators and data sources proposed for each municipality. The first six indicators (population, income per capita, unemployment rate, expenditure per capita, and taxes per capita) are used to characterize the municipalities in the sample and to elaborate the municipal socioeconomic profile. The remaining indicators in the table are used to assess the fiscal health of the sample municipalities. The most recent data are presented for each indicator, which in most cases is from 2016. Whenever 2016 data are not available, 2015 data are used. The labor survey ENOE is carried out only in 35 cities across the country, so this dataset may be restricted. Finally, balance sheet data are collected on individual cities, by searching the individual websites of each municipality.

#### ANNEX 4. METHODOLOGY INDICATORS AND DATA SOURCES

MEASURE	RATIONALE	DATA SOURCE
1 POPULATION	Allows cities to compare themselves to cities of similar size	Population Forecasts. 2016 & 2017. CONAPO
2 INCOME PER CAPITA	Allows cities to compare themselves to cities of similar wealth	Public Finance Open Data Base. 2015 & 2016 INEGI
3 UNEMPLOYMENT RATE	Allows cities to compare themselves to cities with similar economic conditions	ENOE. 2016. INEGI

4	<b>EXPENDITURES PER CAPITA</b>	Allows cities to compare themselves to cities with similar expenditure responsibilities	Public Finance Open Data Base. Historical Dataset 2008-16
5	<b>TAXES PER CAPITA</b>	Allows cities to compare themselves to cities with similar taxes	Public Finance Open Data Base. Historical Dataset 2008-16
6	<b>POPULATION GROWTH</b>	Suggests whether a city is growing and its ability to pay for services	Population Forecasts. 2016. CONAPO
7	<b>TAX BASE GROWTH</b>	Suggests ability to pay for services and meet financial obligations in the future	Public Finance Open Data Base. Historical Dataset 2008-16
8	<b>OPERATING DEFICIT</b>	Indicator of extent to which revenues cover operating expenses only or are available for capital funding or other purposes	Public Finance Open Data Base. Historical Dataset 2008-16
9	<b>NET FINANCIAL ASSETS</b>	Measure of a city's liquidity or ability to pay for short-term obligations. Financial liabilities include, for example, temporary loans, accounts payable, deferred revenue, long-term liabilities, and post-employment benefits (accumulated sick leave, accrued vacation pay, accrued pensions payable)	Municipal Balance Sheet. Historical Municipal Public Account since 2015 whenever is available
10	<b>OWN-SOURCE REVENUES RELATIVE TO TOTAL REVENUES</b>	Reliance on own-source revenues (rather than transfers) reduces the vulnerability of cities to a reduction in transfers that will have to be made up by an increase in own-source revenues or a reduction in expenditures	Public Finance Open Data Base. Historical Dataset 2008-16
11	<b>TAXES RECEIVABLE RELATIVE TO TAXES LEVIED</b>	Increasing levels of tax arrears indicate cash-flow problems for a city and its taxpayers. This measure may also reveal a weakness in the tax base	Own estimation
12	<b>DEBT-TO-TAX RATIO</b>	Measures the ability of the city to repay with tax revenues. Standard measure of a government's fiscal sustainability	Public Finance Open Data Base. Historical Dataset 2008-16, Public Debt Registry. 2017 SHCP
13	<b>DEBT CHARGES RELATIVE TO OWN-SOURCE REVENUES</b>	Indicates the extent to which cities are able to repay debt from taxes and other own-source revenues	Public Finance Open Data Base. Historical Dataset 2008-16, Public Debt Registry. 2017 SHCP
14	<b>ASSET CONSUMPTION RATIO</b>	Measure of infrastructure needs and urgency by estimating the age of a city's physical assets and how much of its assets need to be repaired or replaced. For example, if 40 percent of municipal TCA (excluding land) has been amortized, the average remaining life of the assets is only 60 percent of the average expected useful life. If a city is maintaining its assets, the asset consumption ratio will be low. Land is excluded because it is not amortized.	Municipal Balance Sheet. Historical Municipal Public Account since 2015 whenever is available
15	<b>EXTENT OF INVESTMENT IN CAPITAL ASSETS</b>	Provides an indication of the extent to which cities have been investing in capital assets by comparing the original cost of the capital assets (closing cost balance) with the original cost minus accumulated depreciation (net book value). To preserve the value of its assets, a city would have to invest at least the amount of depreciation each year. A closing net book value that is equal to the closing cost balance (100 percent) would mean the city is preserving the full value of its assets by investing in maintenance and repairs.	Municipal Balance Sheet. Historical Municipal Public Account since 2015 whenever is available

Source: Authors' elaboration.

### Estimating Tax Evasion as a Proxy for Taxes Receivable Relative to Taxes Levied

Equation 1 presents the econometric model, where  $t$  is real estate tax collection (*predial*) and  $x$  are the physical characteristics of dwellings in municipality  $k$ , including number of dwellings, average number of rooms, type of materials used to build the dwellings, availability of municipal services (such as water and sanitation, electricity, garbage collection), and equipment in the dwelling (such as television, internet, and other appliances). The regression was estimated for the natural logarithms of each of the dependent and explanatory variables using ordinary least squares. The econometric exercise was carried out for all of the municipalities in the country. The regression has a high explanatory power ( $R^2=0.86$ ).

**Equation 1** 
$$\ln(t) = \sum_k x_k \beta_k + e$$

The residuals of regression  $e$  can be interpreted as the tax revenue potential of the municipality, since they are estimated as the difference between potential real estate revenues and actual real estate tax collection. A high residual means that the actual tax collection is higher than the typical potential for a municipality in terms of its potential tax base. Therefore, a high residual can be interpreted as a high tax revenue performance (i.e., the municipality is enforcing tax collection, and evasion should be low). The opposite occurs for low residual municipalities. We normalize the residual such that they take values between 0 and 100, with 0 been the lowest value of the index and 100 the highest.

### Reconstruction of Historical Series on Municipal Assets

The available data allow us to reconstruct the historical series of municipal assets using historical investment flows, depreciation rates, and net asset growth of the selected municipalities. The methodology attempts to replicate the estimation of the stock of physical assets that is carried out in the municipal balance sheet.

Equation 2 shows the estimation of assets  $A$  of municipality  $i$ , at any time  $t$ . Assets can be estimated as the sum of historical investment flows ( $I$ ) between time 0 and time  $t$ , depreciated by a factor  $d$ . The depreciation rate ( $d$ ) is analogous to indicator 14: asset consumption ratio. Since the

depreciation value  $d$  is unknown for some municipalities, the depreciation rate of municipality  $i$ , is assumed to be equal to the average depreciation rate of the municipalities, in cluster  $c$ , where municipality  $i$  is clustered within cluster  $c$ . Clusters are defined as mentioned above using the *k-mean algorithm* based on five municipal socioeconomic features. Assets at time  $A_{0,i}$  are unknown.

$$\text{Equation 2} \quad A_{t,i} = \sum_{k=1}^t I_{0,i} (1 - \delta_c)^{t-k} + A_{0,i} (1 - \delta_c)^t$$

As  $t$  increases, the relative weight of assets at time  $A_{0,i}$  become negligible, due to the depreciation. However, for short time series it is necessary to estimate a value based on other observed metrics. For this case, we define the net asset growth  $a$  of municipality  $i$  as the ratio of investment to assets at time  $t$ . This metric is analogous to the municipal investment ratio (see Equation 3)

$$\text{Equation 3} \quad a_{t,i} = \frac{I_{t,i}}{A_{t,i}}$$

Similarly, we define the net asset growth  $a$  of cluster  $c$  as the average ratio of investment in cluster  $c$  to average assets of cluster  $c$ . Both variables are observed in  $t$  since municipal financial investment in  $t$  is known (Equation 4)

$$\text{Equation 4} \quad a_c = \frac{I_c}{A_c}$$

To estimate the value of  $A_{0,i}$  define as a cost function the sum across time in absolute value of the difference between the ratio of net asset growth of municipality  $i$  to net asset growth of cluster  $c$ , where municipality  $i$  is clustered within cluster  $c$ , and  $1$ . Other cost functions can be defined with similar results. The net asset growth of municipality  $i$  depends on the value of  $A_{0,i}$ . Given this cost function,  $A_{0,i}$  is estimated as the argument that minimizes it, as in Equation (5).

$$\text{Equation 5} \quad A_{0,i} = \operatorname{argmin} \sum_{k=1}^t \left| \frac{a_{k,i}}{a_c} - 1 \right|$$

Chapter  
**07**

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BY  
SILVANA HUANQUI

# PERU

MUNICIPAL FISCAL  
HEALTH IN  
LATIN AMERICA



# Context

Peru has been undergoing a political, administrative, and fiscal decentralization process since 2002. A constitutional reform established three levels of government: national, regional, and local (provinces and districts). General laws govern this process and establish a territorial distribution that includes 26 regional governments, 196 provincial municipalities, and 1,874 district municipalities. The local or district level is the smallest jurisdiction. However, there is a double designation at the local level linked to the geographically delimited provincial jurisdictions (provinces).<sup>50</sup> In this sense, specific authorities and functions fall on the capital district to run a province, but it maintains the status and functions of its district delimitation.<sup>51</sup> For example, the Provincial Municipality of Lima manages the entire Lima metropolitan area and also maintains specific functions and authorities over the district located in the center of the city.

Peru is among the countries with the greatest territorial heterogeneity, at an economic, demographic, geographic, cultural, and sociological level. There are large differences among departments, provinces, and districts. Dissimilar structural contexts explain some of these differences, while others are explained by inefficiencies in local policies and the regulatory framework, which may favor economic development of some territories more than others. In addition, the economic growth of recent decades has accelerated urbanization and strengthened the weight of large cities, increasing inequalities between localities and creating major fiscal challenges to maintain sustainable development for major cities.

This study uses data from all municipalities to present a global view of local public finances. In addition, given the high heterogeneity among districts, municipalities will be grouped following the classification of districts developed by the Ministry of Economy and Finance (MEF). This responds to the need to establish a criterion to identify municipalities with the greatest development potential, and to be able to compare municipalities within the same group. The categorization is based on variables such as population, poverty, and economic potential: main cities , or “Municipalities Type A”; main cities, or “Municipalities Type B”; municipalities not considered main cities with more than 500 urban households; and municipalities not

50 A province is framed within a jurisdiction that geographically contains several districts.

51 Provinces administer vehicle ownership tax, betting tax, and gaming tax, among others, while districts administer taxes that imply greater collection, such as property tax, alcabala tax, and non-sporting public events.

considered main cities with fewer than 500 urban households. The last section focuses on the 25 provincial municipal capitals of the departments of Peru, which represent the largest, most urbanized municipalities with the greatest potential for sustainable economic development. Demographic information was obtained from the 2007 National Census and official projections from the National Institute of Statistics and Informatics (INEI). The MEF database provided fiscal data for this study.

## Local Government Profiles

Population dynamics have resulted in a disorderly formation of monocentric cities and a high level of fragmentation, affecting the provision of local services. According to the INEI, in 2015 the total population of the country was 31.1 million, distributed in 1,874 districts, 805 of which are urban where 76 percent of the total population is concentrated (see Table 7.1). Only 369 municipalities have populations over 10,000, more than half of the municipalities (50.9 percent) have populations under 5,000, and 40 municipalities (2 percent) have fewer than 500 citizens.

Additionally, there appears to be a high correlation between rurality and poverty. Statistically, for district data from 2009, the correlation is 0.42<sup>52</sup>. If a comparison is made according to the level of rurality, we define an urban district as one where more than 50 percent of its population lives in urban areas. In rural districts, the indicators of poverty and chronic child malnutrition (CCM) are significantly higher.

52 In statistics, the correlation coefficient measures the strength and direction of a relationship between two variables. The value of the coefficient is between +1 and -1, being +1 a perfect uphill linear relationship, and -1 a perfect downhill linear relationship.

TABLE 7.1. NUMBER OF MUNICIPALITIES AND POPULATION BY RURAL OR URBAN, 2015

MEASURE	MUNICIPALITIES / DISTRICTS		POPULATION		POVERTY (2009)	CCM
	N°	PERCENTAGE	N°	PERCENTAGE	PERCENTAGE	PERCENTAGE
URBAN	805	43.9	23,706,064	76.28	41.1	25.3
RURAL	1069	56.1	7,370,306	23.7	58.5	37.2
TOTAL	1874	100.0	31,076,370	100.0		

Source: INEI database, using data from the 2007 national census and 2009 estimations for poverty levels.

The information on per capita income, available only for the 195 provinces from the 2007 national census, shows similar disparities. The average per capita income was US\$705.29 in 2007. The 15 provinces with the highest per capita income registered incomes between US\$1,056 and US\$13,404. Most of these are usually mining provinces, which receive considerable transfers from mining canon and mining royalties. This ultimately translates into greater benefits in terms of the increase in the dynamism of the economic activity.

Also, considering the district classification by the MEF, more than two-thirds of the population is located in main cities (249 municipalities that belongs to the category Type A and Type B). On average, Type A municipalities have 245,000 inhabitants, Type B municipalities have 53,000 inhabitants, while for non-main cities, the population average is 10,871 for cities with more than 500 urban houses and 4,100 for cities with fewer than 500 urban houses.

TABLE 7.2. POPULATION BY TYPE OF MUNICIPALITY, 2015

TYPE	NUMBER OF MUNICIPALITIES	AVERAGE POPULATION	TOTAL POPULATION	
			NUMBER OF INHABITANTS	PERCENTAGE
TYPE A	40	245,441	9,817,635	31.5%
TYPE B	209	53,003	11,077,558	35.5%
MORE THAN 500 URBAN HOUSES	556	10,871	6,011,846	19.3%
LESS THAN 500 URBAN HOUSEHOLDS	1033	4,179	4,299,809	13.8%

Source: INEI database, using data from the 2007 national census.

This tends to encourage migration from rural areas to urban cities, forcing new development strategies for authorities. Local authorities from urban cities need to acquire more proactive and effective planning for urban growth. At the same time, migration creates further obstacles for economic growth for rural locations.<sup>53</sup> However, in practice, urban municipalities have much greater advantages and better tools to accelerate the development of their locality.

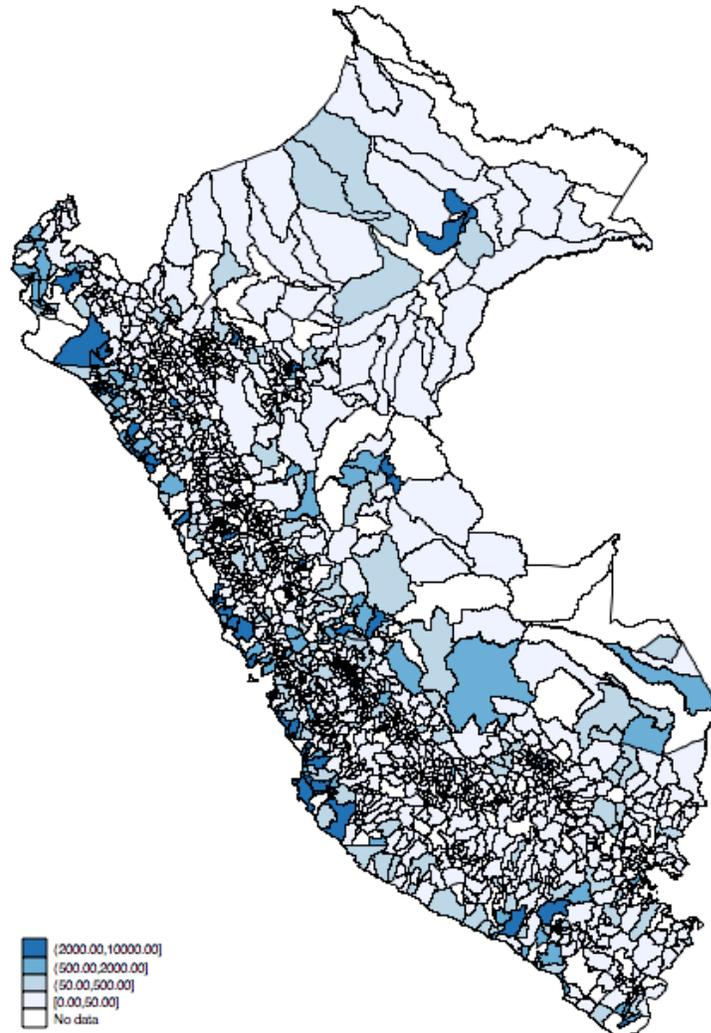
One of these advantages is the collection of local taxes, which is much higher in urban municipalities. The financial autonomy ratio refers to the own resources collected over total revenues, which measures the financial autonomy of the municipalities and their capacity to finance their operational expenditures and service delivery. In a decentralized fiscal system, a strong tax administration is fundamental to increase the own revenues collected.

Peruvian local governments have two ways of administering taxes: through an autonomous tax service agency that reports to the municipality, and through an office in the General Tax Administration Office of the municipalities. There are ten cities that have an autonomy tax service agency. Regarding local expenditures, the municipalities are in charge of administering them.

In 2016, per capita tax revenues in urban areas averaged S/. 4,000 (approximately US\$1,200), while in rural areas, tax collection barely surpassed S/. 165 per capita (or US\$50). Moreover, 46.5 percent (477 rural municipalities of 1,026) have a virtually zero tax revenues, while 71 percent (733 municipalities) collected less than S/. 10 per capita (US\$3.03) during that year. Only 53 rural municipalities (5 percent) collected more than S/. 500 per capita (US\$151) (see Map 7.1).

53 For example, the largest district in Peru is San Juan de Lurigancho in the metropolitan province of Lima, where 3.51 percent of the population (1.1 million of habitants) are concentrated, while the second largest district is San Martín de Porres, in the same province, with 700,000 inhabitants (1.2 percent of total population). The 10 most populated districts are in Lima, and the population growth in these districts from 2007 to 2015 was 16.9 percent, which is significantly high considering that the average growth rate for the country population in the same time lapse is 9 percent.

MAP 7.1. PER CAPITA LOCAL TAX COLLECTION, 2016



Source: Authors' elaboration based on Peru MEF database, available at <https://datosabiertos.mef.gob.pe/>.

Considering the MEF classification, the differences are noteworthy. Tax revenues in the main cities greatly exceed revenues of non-cities municipalities. The average per capita tax revenue for Type A municipalities is US\$67 and for Type B US\$21, while non-main-cities municipalities can collect barely US\$9 and US\$3.8, respectively (see Table 7.3).

Similarly, another measure of the financial autonomy of a municipality is the ratio between own revenues and total revenues. In Peru the average ratio for local government was nearly 10. This means that, on average,

the collection of taxes is a tenth of total income. Type A municipalities have the highest local income tax per capita and a greater ratio of own revenues to total revenues. As expected, municipalities in the fourth group have the lowest local income tax per capita and the lowest ratio of financial autonomy (see Table 7.3).

**TABLE 7.3. LOCAL REVENUES IN THE FOUR TYPES OF MUNICIPALITIES, 2016**

	LOCAL PER CAPITA INCOME TAX (US\$)	OWN-SOURCE REVENUES RELATIVE TO TOTAL REVENUES
TYPE A	67.14	69.48
TYPE B	21.05	22.63
MORE THAN 500 HOUSEHOLDS	9.25	8.50
LESS THAN 500 HOUSEHOLDS	3.82	6.54

Source: Authors' elaboration based on data from Peru's MEF.

One of the factors that may explain these large differences is the productive potential of localities, determined by the size of the economic activity. It is also important to consider local management “fiscal laziness,” or failure to make adequate efforts to increase local sources of revenue generation, preferring to use central government transfers to meet their obligations. Data show that tax revenue has been highly concentrated on the central government: in 2017,<sup>54</sup> the central government raised 97 percent (S/. 90.7 billion) of total tax revenue, while local governments raised only 3 percent (S/. 2.8 billion).<sup>55</sup> Property tax collection, which is the pillar of local taxation, barely represents 0.02 percent of national GDP<sup>56</sup>. Furthermore, only 24 percent of total revenues were collected from their own resources (local taxes and fees). The lack of a robust subnational revenue source makes SNGs dependent on central government transfers.

Ordinary resources (shared revenue) are one of the main sources of income for local governments. They are based on historical spending patterns and

54 Local governments raised 6 percent and regional governments raised only 1 percent. Data source: SUNAT and MEF.

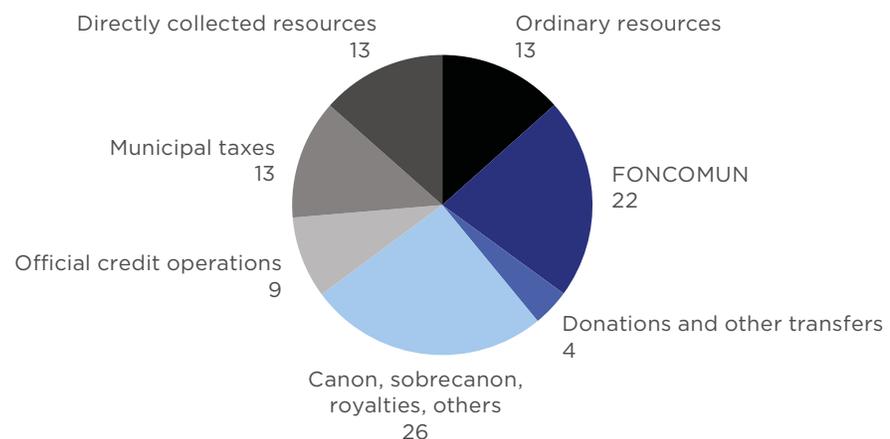
55 Regional governments do not have tax powers up to now.

56 In Latin America the property tax raise represents 0.47 percent of the GDP in average (19 times the proportion in Peru) and in the OECD countries it represents 1.85 percent of the GDP in average (75 times the proportion in Peru).

were created as a gap-filling transfer. Although largely subject to several approaches, such as specific central governments guidelines, the role of ordinary resources in correcting fiscal disparities is ambiguous. The Municipal Compensation Fund (Fondo de Compensación Municipal, or FONCOMUN) is a transfer program financed with the Municipal Promotion Tax, which consists of a rate of 2 percent over the VAT. Canon and royalties are the most important sources of revenue for many municipalities. They are commodity-based revenues distributed exclusively to the regional and local governments where minerals are extracted. Considering the dramatic increase in international prices of natural resources during last decade, the canon distribution increased fiscal disparities among local governments.

As can be seen in Figure 7.1, local revenues are highly dependent on transfers from the central government. The most important ones are FONCOMUN and CANON. Both of them are strongly procyclical, causing an increase in local fiscal vulnerability. Additionally, the degree of dependence on local revenues causes serious budget constraints and a lack of planning capacities for local authorities.

**FIGURE 7.1. PERCENTAGE OF TAX REVENUES BY LEVEL OF GOVERNMENT**



Source: Authors' elaboration based on Peru's MEF database, available at <https://datosabiertos.mef.gob.pe/>.

Moreover, the transfer system does not incentivize local governments to increase their fiscal effort, especially local governments that have important resources from canon and royalties. Nonetheless, since 2010 the implementation of the Municipal Incentives Plan for Property Tax Collection represents one of the few effective attempts to increase local

tax resources. During 2010, property tax collection was S/. 1.45 billion (US\$439 million). In 2016, this collection rose to S/. 2.8 billion (US\$860 million), equivalent to a 96 percent increase or an average annual increase of 11.9 percent.

Considering the key role local governments play in fostering local development to provide local services (e.g., waste collection, maintenance of public spaces, local security, safety controls, etc.) and infrastructure (e.g., construction and maintenance of local roads, schools, bridges, etc.), per capita expenditure gives full information about the capability of municipalities to fulfill their main responsibilities. In 2016, per capita expenditure was on average US\$428.3. Contrary to what the revenue figures suggest, per capita local expenditure is higher in the fourth type of municipalities (those that are not considered main cities with fewer than 500 urban households); average expenditure was US\$503.1, followed by the third type with US\$324.81. Type A municipalities have a local expenditure per capita of US\$155.9, and Type B municipalities have a per capita expenditure of US\$162.7 (see Table 7.4).

**TABLE 7.4. LOCAL EXPENDITURE BY TYPE OF MUNICIPALITY, 2016**

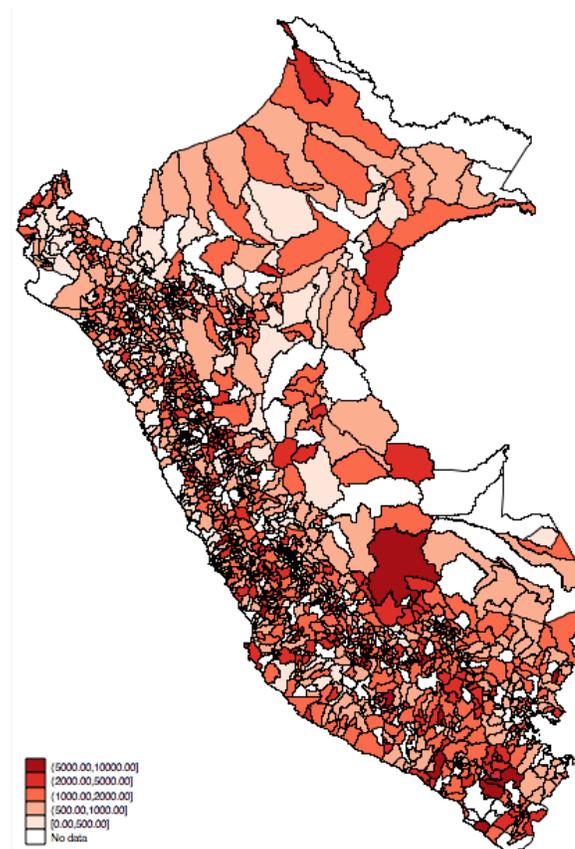
TYPE	LOCAL EXPENDITURE (US\$)	AVERAGE POPULATION	EXPENDITURE PER CAPITA (US\$) <sup>v</sup>
TYPE A	23,740,964	245,441	155.9
TYPE B	6,228,494	53,002	162.7
MORE THAN 500 URBAN HOUSEHOLDS	2,596,708	10,871	324.8
FEWER THAN 500 URBAN HOUSEHOLDS	1,461,644	4,178	503.1

<sup>v</sup> The average 'local expenditure' of each district  
Source: Peru's MEF and INEI using data from the 2007 national census.

This is explained by the higher population density existing in main cities, in addition to the disproportionate amount of revenues from transfers such as mining canon, which is distributed mainly in rural cities with greater mineral reserves. Many initiatives attempt to achieve the integrated development of these cities by strengthening the institutional capacities of local authorities so that they can fulfill their urban management and local development responsibilities. However, local spending has always been described as highly inefficient and lacking a previous strategic

planning process as well as revenues, which creates significant disparities among municipalities. Although in recent decades capital spending has had a greater role in local management, explained by the increase in canon revenues, it was established that resources from canon must be spent only on infrastructure.

MAP 7.2. PER CAPITA LOCAL EXPENDITURE, 2016



Source: Authors' elaboration based on Peru's MEF database, available at <https://datosabiertos.mef.gob.pe/>.

The average operating deficit is higher for Type A municipalities. However, the average deficit relative to own revenues is much higher in the last bracket (i.e., fewer than 500 urban households), mainly because the latter have scarce resources of their own.

TABLE 7.5. OPERATING DEFICIT, 2016 (US\$)

	OPERATING DEFICIT	OPERATING DEFICIT/OWN RESOURCES
TYPE A	-4,652,762	-0.16
TYPE B	-1,846,840	-1.72
MORE THAN 500 URBAN HOUSEHOLDS	-897,634	-0.40
FEWER THAN 500 URBAN HOUSEHOLDS	-383,939	-533.88

Source: Authors' elaboration based on data from Peru's MEF.

In this regard, the financial solvency with respect to the operating deficit that municipalities can cover on average, suggest that Type A main cities are much more stable than the others. However, the situation is weak for Type B main cities, where the average operating deficit is 1.27 times its current revenue. Within this group, 49 percent of municipalities have an operating deficit greater than their own revenues, and only 6 percent registered an operating surplus. Likewise, 23 percent of municipalities from this category have an operating deficit greater than twice their current income.

In the case of the municipalities in the latter category (fewer than 500 urban households), the majority of municipalities (84.8 percent) registered an operating deficit higher than their own revenues; 40 percent have an operating deficit greater than 10 times their own income; and 7.3 percent have a deficit greater than 100 times their current income. Therefore, the problem in these types of municipalities, beyond poor financial management, is the inability to generate more revenue.

Regarding local debt, at the local level, municipalities have limited capacity to acquire debt. The Fiscal Decentralization Law and other norms, force SNGs to adhere to a set of restrictive regulations and permits established by the MEF to acquire debt. However, many local governments have high levels of debt, consisting of obligations to suppliers and state entities (such as the pension fund administrators, or AFP, and the Superintendence of Tax Administration, or SUNAT). In 2015, a large part of the total local debt was owed by municipalities from main-cities (Types A and B), as can be seen in Table 7.6. However, non-main cities were subject to greater debt pressure, measured by debt service relative to total own-source revenues.

Much of the small localities' indebtedness consists of contingent liabilities, outstanding debt with suppliers, and in many cases debt with state entities (such as SUNAT and AFP).

Debt charges for non-main cities represents approximately a tenth of their income and total debt almost half of their tax revenues. Despite the fact that smaller localities have very low debt compared to the main cities, this debt is considered very high relative to their income, due to the scarce (or almost null) tax collection capacities. Secondly, data show that small municipalities are under strong pressure to meet their obligations, and do not have their own resources, and depend on intergovernmental transfers to meet these obligations.

**TABLE 7.6. DEBT RATIOS IN THE FOUR TYPES OF MUNICIPALITIES**

TYPE	TOTAL DEBT, 2015 (MILLIONS)	TOTAL DEBT/INCOME TAX, 2015	DEBT CHARGES RELATIVE TO OWN-SOURCE REVENUES, 2016
TYPE A	4,648.04	0.004	0.01
TYPE B	2,194.83	0.0067	0.031
MORE THAN 500 HOUSEHOLDS	441.7	0.424	0.087
FEWER THAN 500 HOUSEHOLDS	211.5	0.502	0.18

Source: Authors' elaboration based on data from the Sistema Integrado de Administración Financiera (SIAF) of MEF.

Another problem with respect to local debt management is the culture of non-payment by the authorities. After local elections, new authorities do not always acknowledge debt acquired previously. They default on local creditors and add to the cost of contingent liabilities by having to enter into costly legal proceedings.

Additionally, one of the most serious problems in local government management is the inadequate registration of debt operations. The MEF's Unified Subnational Information System collects detailed information on subnational finance and, to date, there is information on only 429 local governments. It is expected that more local governments will be included and instructed to compile more complete information about the state of local finances, especially regarding the management of local debt.

Among the most important conclusions is that there is a need to recognize the wide disparities in the economic position and fiscal management of Peruvian municipalities, and that sustainable development strategies need to start from different approaches related to the economic potential and dissimilar management capacities of local authorities. Aggregate data show that local governments of the main cities seem to have a better fiscal and financial position and hence higher potential to achieve a sustainable development.

## The Municipal Fiscal Health of 25 Large Municipalities

To analyze the fiscal health of a group of municipalities, districts within the main provinces have been divided in three groups and Lima (see Table 7.7). The province of Lima is the largest city in Peru. It had 8.9 million of inhabitants in 2015. Because it is the only municipality with more than 1.5 million inhabitants, and the municipality has a special regime, it is not considered to be part of any group for the analysis.

Some 30 percent of the country's population lives in the province of Lima. Its population is eight times larger than Callao and Arequipa, the two provinces that follow it. Its population growth rate from 2014 to 2015 was 1.59 percent. According to the Metropolitan Institute of Planning of Lima (2014), the population concentration in Lima is due to migration from rural areas and small cities, which accelerated in the 1950s and 1960s and continues to this day. The Institute estimates that Lima will continue growing at an approximate annual rate of 1.35 percent. People migrate to Lima seeking greater labor and education opportunities. The lack of basic services, such as health care, in rural areas and small cities also pushes people to Lima.

Peru is experiencing an urbanization process where medium-sized cities are also growing and attracting people from rural areas. For this analysis, the first group comprises seven municipalities according to the size of the provincial jurisdiction. It has a population between 500,000 and 1

million. The average growth rate as per 2014–15 of these seven cities is 1.04 percent. Four of these cities—Arequipa, Callao, Piura, and Trujillo—are growing faster than the average rate. They are all considered coastal cities. Chiclayo, another coastal city, has a ratio of 0.81 percent, while Maynas, in the Amazon region, and Huancayo, in the Andean region, grew 0.74 percent and 0.35 percent, respectively, in the same period. This shows that the main medium-sized cities are on the coast, and that they are growing faster than the cities in the Amazon and in the Andean region.

The second group consists of nine municipalities with populations between 200,000 and 500,000. The group contains one province from the Amazon (Coronel Portillo), three coastal provinces (Ica, Huaura, and Tacna), and five located in the Andean region. On average, these cities grew at a rate of 1.27 percent from 2014 to 2015, more than the cities in the first group. The city that has grown the fastest is Huamanga (Ayacucho) at a rate of 1.85 percent, followed by Cusco, Cajamarca, and Tacna (1.79, 1.68, and 1.49 percent, respectively). Huaura and Puno have the smallest populations in this group and the lowest population growth rates.

Finally, the third group consists of the nine smallest municipalities, with a population that range between 50,000 and 170,000 inhabitants. From this group, Moyobamba and Tambopata, two cities in the Amazon region, grew 2.73 and 2.54 percent, respectively, faster than the average of 1.1 percent. Chachapoyas, another small city of the Amazon, grew at only 0.2 percent. Only one city in this group—Tumbes—is located on the coast, and it grew a rate of 0.94 percent, lower than the average. The remaining cities are located in the Andean region. All of them grew at a rate below the average, except Huaraz, which grew at 1.13 percent.

TABLE 7.7. POPULATION IN THE MAIN PROVINCES BY GROUP, 2015

PROVINCE		DISTRICT POPULATION	PROVINCIAL POPULATION	POPULATION GROWTH, 2014 (IN PERCENTAGE)
LIMA	LIMA	271,814	8,894,412	1.59
GROUP 1	PROV. CALLAO	406,889	1,010,315	1.39
	AREQUIPA	54,095	969,284	1.14
	TRUJILLO	318,914	957,010	1.51
	CHICLAYO	291,777	857,405	0.81
	PIURA	301,311	764,968	1.34
	MAYNAS	150,484	563,249	0.74
	HUANCAYO	116,953	503,139	0.35
GROUP 2	CUSCO	118,316	450,095	1.79
	CAJAMARCA	246,536	388,140	1.68
	CORONEL PORTILLO	154,082	377,875	1.03
	ICA	131,003	362,693	1.27
	TACNA	85,228	316,964	1.49
GROUP 2	HUANUCO	76,065	310,448	0.96
	HUAMANGA	113,380	276,443	1.85
	PUNO	141,064	248,377	0.50
	HUAURA	58,532	219,059	0.90
GROUP 3	HUARAZ	64,109	166,625	1.13
	TUMBES	111,683	164,404	0.94
	HUANCAVELICA	40,345	158,594	1.00
	PASCO	26,085	157,310	0.21
	MOYOBAMBA	83,475	148,160	2.73
	ABANCAY	56,093	106,214	0.13
	TAMBOPATA	78,378	99,405	2.54
	MARISCAL NIETO	57,243	81,450	1.05
CHACHAPOYAS	28,731	55,201	0.20	

Source: Authors' elaboration based on data from INEI.

## Revenues and Expenditures

Regarding financial management in the sample municipalities, average local expenditure per capita in 2015 was US\$103.6. Average local income tax per capita was US\$13, and the ratio between local revenues collected and total revenues was 33.2 percent.

Lima has a large autonomous tax service agency. Because it is a large city, tax collection in absolute numbers is higher than in other Peruvian cities. However, it has a local income tax per capita of only US\$27.9. Its financial autonomy ratio was 43.14 percent, so the own revenues collected do not cover even half of the total revenues.

As shown in Figure 7.2, the first group of cities, with larger population, presented an average ratio of financial autonomy of 50.7 percent. In general terms, this group of cities is collecting half of their total revenues. Arequipa, Callao, Huancayo, and Trujillo have the greatest financial autonomy in this group, with ratios over 51 percent. These cities have tax administration agencies, which is an efficient way of collecting revenues. The municipality of Maynas has a financial autonomy ratio of only 23.4 percent—very low compared to the average of the group. However, this municipality also had one of the highest per capita local expenditures.

In the second group, cities those with a population between 200,000 and 500,000, the average financial autonomy ratio is 31.2 percent. Only four cities are above this average: Cusco, Ica, Huaura, and Tacna, with Tacna having the highest ratio, at 55.77 percent. The other municipalities had ratios between 15 and 30 percent. In medium-sized cities, the coastal cities such as (Huaura, Ica, and Tacna) have better tax management than those in the Andean Region. Coronel Portillo, a city in the Amazon region, has a financial autonomy ratio of only 15 percent, the lowest among cities of the same size.

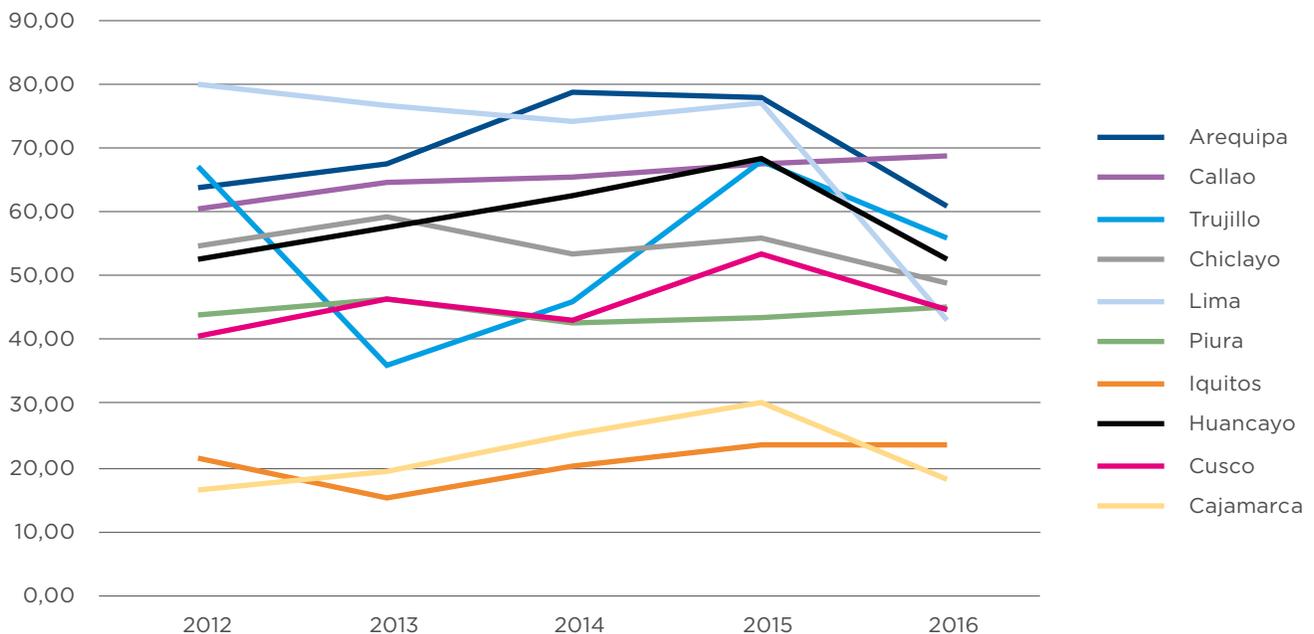
The average per capita local expenditure is US\$80.7. Cusco has the highest per capita expenditure, US\$103.7, while Huanuco has the lowest with US\$48.6. Comparing local per capita income taxes with per capita expenditures, in all of the cities, expenditure exceed local income tax at least threefold. This reflects the lack of financial planning by local governments, which increases dependency on national governments.

In the third group, cities with a population between 50,000 and 170,000, the average per capita local income tax was US\$10, and the ratio between

own revenues and total revenues was 20.5 percent. The collection of own revenues relative to total revenues in this group is lower than the others. Comparing the cities in this group, Chachapoyas collects own revenues at a higher rate than the average (34.69 percent), while Huancavelica, the poorest city in Peru, has the lowest ratio (9.55 percent). This ratio is a measure of high reliance on the national government and an indication of the city's poor capacity to raise its own resources.

In the sample of 10 main municipalities, fiscal autonomy has decreased in recent years. This is especially true for Arequipa, Cajamarca, Cusco, Huancayo, Lima, and Trujillo, which registered high levels of fiscal autonomy during 2012 and a slightly decreasing trend in the ensuing years.

**FIGURE 7.2. FISCAL AUTONOMY FOR A SAMPLE OF MUNICIPALITIES (S/.)**



Source: Authors' elaboration based on Peru's MEF database, available at <https://datosabiertos.mef.gob.pe/>.

Regarding local expenditures, the 25 municipalities register a high average per capita expenditure of US\$168.4. Mariscal Nieto is an outlier, showing a very high local expenditure per capita in 2015, with low local per capita income tax. The main reason for this discrepancy is because this city benefits significantly from the mining industry and royalties, and 80

percent of its budget was derived from this economic activity, which the city invested in sanitation and transportation projects.

**TABLE 7.8. LOCAL EXPENDITURES AND REVENUES IN THE MAIN PROVINCES BY GROUP, 2015**

PROVINCE		LOCAL EXPENDITURE PER CAPITA (US\$)	LOCAL INCOME TAX PER CAPITA (US\$)	OWN-SOURCE REVENUES RELATIVE TO TOTAL REVENUES (IN PERCENTAGE)
LIMA	LIMA	56.1	27.9	43.14
GROUP 1	PROV. CALLAO	90.3	23.3	68.77
	AREQUIPA	49.8	15.7	60.65
	TRUJILLO	57.1	21.2	55.90
	CHICLAYO	34.4	10.7	48.89
GROUP 1	PIURA	49.9	12.3	45.06
	MAYNAS	58.4	7.7	23.41
	HUANCAYO	55.5	15.5	52.53
GROUP 2	CUSCO	103.7	14.7	44.77
	CAJAMARCA	100.0	16.8	18.02
	CORONEL PORTILLO	104.7	6.4	15.27
	ICA	67.8	17.8	34.68
	TACNA	98.9	21.8	55.77
	HUANUCO	48.6	6.9	31.09
	HUAMANGA	64.4	9.5	25.35
	PUNO	84.3	10.4	21.76
	HUAURA	53.9	9.8	33.70
GROUP 3	HUARAZ	95.0	12.3	21.54
	TUMBES	98.0	8.7	13.40
	HUANCANELICA	97.7	2.6	9.55
	PASCO	51.3	3.4	15.29
	MOYOBAMBA	72.6	6.2	19.24
	ABANCAY	164.0	8.5	25.18
	TAMBOPATA	134.4	23.7	28.74
	MARISCAL NIETO	640.1	13.6	16.81
	CHACHAPOYAS	162.8	11.3	34.69
<b>AVERAGE</b>		<b>103.6</b>	<b>13.0</b>	<b>33.2</b>

Source: Authors' elaboration based on data from SIAF-MEF.

## Operating Balance

In terms of operating deficits, all of the municipalities in the first group presented a surplus in 2016 (see Table 7.9). This is because intergovernmental transfers are included in current income. This shows the difference between current expenditures and current income in 2016. The average result in this group was US\$-7.8. Arequipa and Cusco have the highest surplus which implies that they have a greater capacity to carry out capital spending or debt repayment (see Table 7.9).

Huancayo and Trujillo also presented high surpluses, while Maynas had a very low surplus compared to the other cities. In the second group, Tacna had a deficit of US\$13,619 (see Table 7.10), meaning that it spent much more than its current revenues.

**TABLE 7.9. OPERATING DEFICIT IN GROUP 1, 2016**

	PROVINCE	OPERATING DEFICIT (US\$)
GROUP 1	AREQUIPA	-15,692,843.12
	HUANCAYO	-10,098,202.54
	TRUJILLO	-9,214,583.25
	PIURA	-7,351,652.32
	CHICLAYO	-7,259,019.53
	PROV. CALLAO	-4,413,912.70
	MAYNAS	-772,037.85

Source: Authors' elaboration based on data from SIAF-MEF.

TABLE 7.10. OPERATING DEFICIT IN GROUP 2, 2016

PROVINCE	OPERATING DEFICIT (US\$)
CUSCO	-14,866,834.51
CAJAMARCA	-9,265,734.35
PUNO	-5,300,560.12
HUAMANGA	-4,215,204.12
CORONEL PORTILLO	-3,878,018.02
ICA	-3,543,336.63
HUANUCO	-3,322,791.81
HUAURA	-1,921,712.44
TACNA	113,619.48

Source: Authors' elaboration based on data from SIAF-MEF.

TABLE 7.11. OPERATING DEFICIT IN GROUP 3, 2016

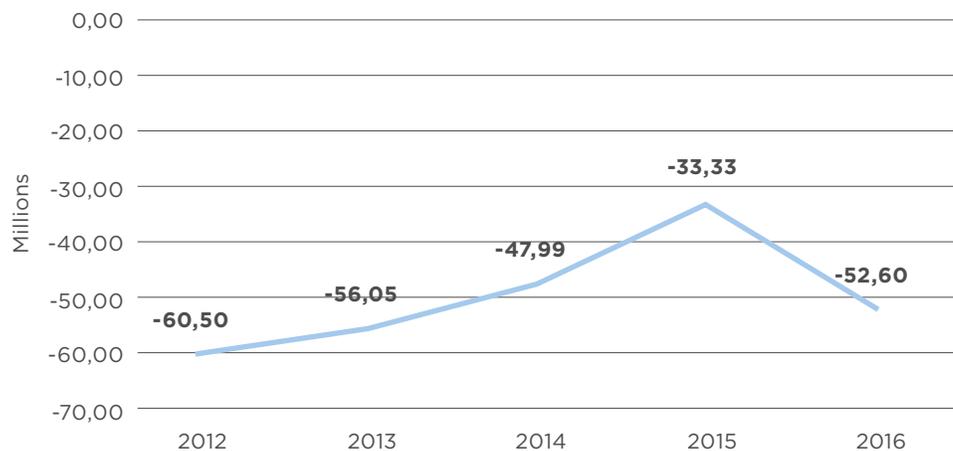
PROVINCE	OPERATING DEFICIT (US\$)
MARISCAL NIETO	-12,215,233.35
MOYOBAMBA	-3,873,825.13
TAMBOPATA	-3,010,363.40
HUANCVELICA	-2,063,911.09
HUARAZ	-1,072,587.34
ABANCAY	-978,032.58
CHACHAPOYAS	-549,850.93
PASCO	492,438.44
TUMBES	903,918.31

Source: Authors' elaboration based on data from SIAF-MEF.

Considering the 10 selected districts (Arequipa, Cajamarca, Callao, Chiclayo, Cusco, Huancayo, Iquitos, Lima, Piura, and Trujillo), the fiscal situation, measured by the average operating deficit, has deteriorated (i.e., the surplus has gradually fallen), except for the last year (2016), where the operating surplus increased from S/. 33 (US\$10 million) to S/. 52 million (US\$15.7 million).

However, current revenues include intergovernmental transfers, which are volatile in nature (especially income derived from the exploitation of extractive industries, such as mining canon or mining royalties). This may keep local governments in a situation of financial vulnerability, despite registering an operating surplus.

**FIGURE 7.3. EVOLUTION OF OPERATING DEFICIT FOR A SALE OF MUNICIPALITIES (S/.)**



Source: Authors' elaboration based on Peru's MEF database, available at <https://datosabiertos.mef.gob.pe/>.

## Debt

Regarding debt relative to tax collection, in the first group Chiclayo and Callao had the largest ratios between 2014 and 2016 (see Table 7.12). Their ratios are remarkably high compared to the other cities of this group. Trujillo, Huancayo, and Piura have very small ratios. Districts with the lowest debt-to-tax ratios are typically urban areas located on the coast. The metropolitan province of Lima has high debt (S/. 554 million, equivalent to US\$160 million) but much higher revenues, which makes the debt ratio only 0.69 percent. In the second group, five cities (Cajamarca, Cusco, Huamanga, Puno, and Tacna) had ratios from 0.88 to 2 percent, and the other four municipalities had ratios between 5 and 9 percent. Coronel Portillo had the highest ratio of the group, at 86 percent.

The cities in the third group are highly reliant on other transfers, such as Canon and FONCOMUN. Consequently, their debts are very large

compared with their own tax revenues. Abancay and Mariscal Nieto have the highest debt-to-tax ratio. Both cities have a heavy mining industry that enables them to increase their revenues and reduces the pressure to improve their own revenue collection. In Abancay, 30 percent of the tax revenues represented the amount of debt, and in Mariscal Nieto it was 21 percent, while Chachapoyas, Huaraz, Moyobamba, and Tambopata had the lowest ratios, between 1 and 4 percent.

**TABLE 7.12. DEBT-TO-TAX RATIO IN GROUPS 1, 2, AND 3 (IN PERCENTAGE)**

(average 2014–16)

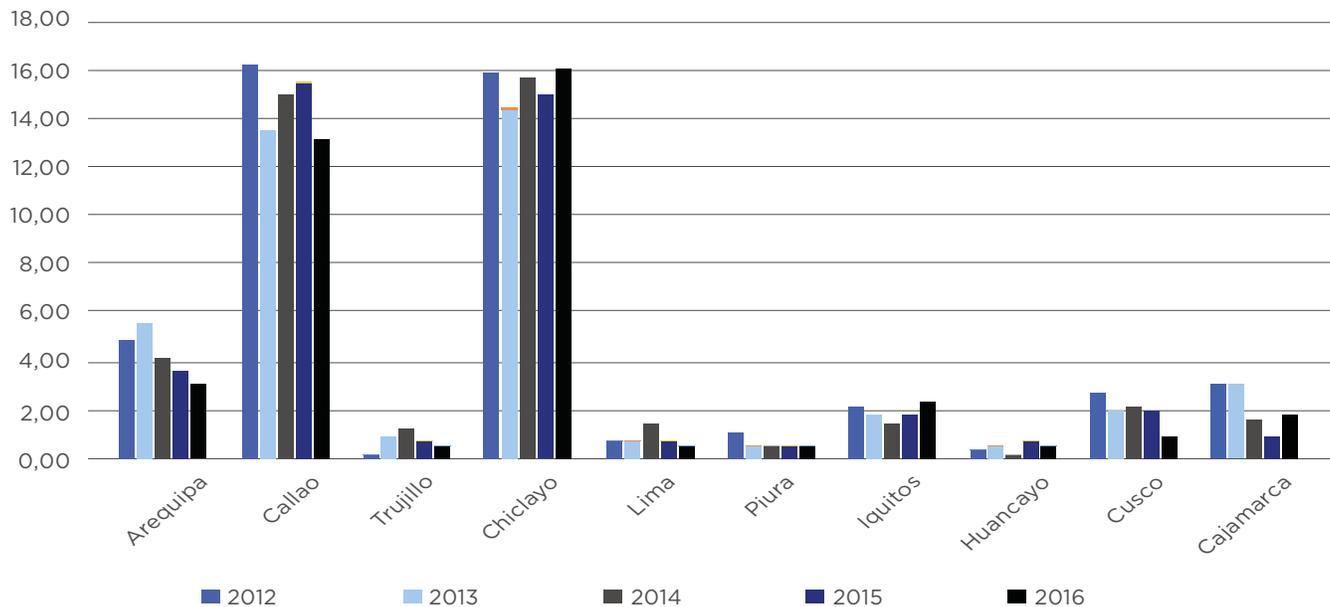
	PROVINCE	DEBT-TO-TAX RATIO
GROUP 1	CHICLAYO	15.98
	PROV. CALLAO	13.19
	AREQUIPA	3.12
	MAYNAS	2.38
	TRUJILLO	0.68
	HUANCAYO	0.67
	PIURA	0.60
GROUP 2	CORONEL PORTILLO	8.86
	ICA	7.26
	HUAURA	6.76
	HUANUCO	5.33
	CAJAMARCA	1.93
	HUAMANGA	1.03
	PUNO	1.00
	CUSCO	0.93
	TACNA	0.88

PROVINCE	DEBT-TO-TAX RATIO
ABANCAY	30.68
MARISCAL NIETO	20.88
TUMBES	12.16
PASCO	11.40
HUANCAVELICA	7.62
TAMBOPATA	3.86
HUARAZ	2.10
MOYOBAMBA	1.81
CHACHAPOYAS	1.11

Source: Authors' elaboration based on data from SIAF-MEF.

In addition, some local governments maintain a very high debt-to-own-income ratio. This is the case of the provinces of Callao and Chiclayo. In Callao, total debt for 2015 was nearly one billion soles (S/. 964.8 million, or US\$292 million), while in Chiclayo, the total debt amounted to S/. 449 million soles (or US\$136 million). Lima registered a debt of S/. 653 million soles (US\$197.9 million); however, high tax revenues meant that it had the lowest ratio in the sample.

FIGURE 7.4. RATIO OF DEBT TO OWN INCOMES FOR A SAMPLE OF MUNICIPALITIES



Source: Authors' elaboration based on Peru's MEF database, available at <https://datosabiertos.mef.gob.pe/>.

### Asset Consumption Ratio

The asset consumption ratio measures the amount of money spent per person to close the infrastructure gap. In the first group of larger cities, Arequipa had the highest ratio in the last decade, with an expenditure of US\$34,855 per person without access to basic services (see Table 7.13). This means that Arequipa invested more per capita to close the infrastructure gap than the other municipalities of the group. The expenditure in the other six municipalities was between US\$350 dollars and US\$1,000. Arequipa is also the municipality with the highest ratio in Peru, followed by Lima, with a ratio of US\$23,497.

In the second group, the average per capita expenditure was US\$950. Only Cusco, Huaura, and Tacna had ratios above the group average. This indicates that these cities are spending more to close infrastructure gaps than their peers. Ica and Huamanga have a ratio of zero. The smallest cities spent on average US\$1,593 per person without access to basic services. This is a large amount because Chachapoyas and Mariscal Nieto spent around US\$6,000 and US\$5,000 respectively. These cities invested in sanitation

and health projects. Compared to their peers, these cities spent more to close infrastructure gaps. However, Chachapoyas and Mariscal Nieto, which are in the third group, have a higher ratio than the second group, with US\$6,000 and US\$4,700 per capita, respectively (see Table 7.13).

**TABLE 7.13. ASSET CONSUMPTION RATIO IN THE 25 PROVINCIAL MUNICIPALITIES BY GROUP, 2015**

	PROVINCE	PER CAPITA EXPENDITURE PER PERSON WITHOUT ACCESS TO BASIC SERVICES (US\$)
LIMA	LIMA	23,497.38
GROUP 1	AREQUIPA	34,855.49
	TRUJILLO	989.36
	HUANCAYO	969.28
	MAYNAS	617.04
	PROV. CALLAO	526.98
	PIURA	375.54
	CHICLAYO	346.73
	GROUP 2	CUSCO
HUAURA		2,222.28
TACNA		1,826.14
CORONEL PORTILLO		699.90
HUANUCO		556.15
PUNO		341.47
CAJAMARCA		332.25
ICA		0.00
HUAMANGA		0.00

GROUP 3	CHACHAPOYAS	5,999.06
	MARISCAL NIETO	4,671.61
	HUANCAVELICA	901.30
	ABANCAY	790.75
	TAMBOPATA	548.61
	HUARAZ	432.79
	PASCO	355.09
	MOYOBAMBA	322.66
	TUMBES	319.44

Source: Authors' elaboration based on data from SIAF-MEF.

Additionally, in the sample municipalities, per capita expenditure relative to the population without access to basic services is much lower than the national average (S/. 4,100). Only Arequipa and Lima register higher spending aimed at closing gaps, while the other districts spend less than S / .1000 per capita without access to basic services (see Table 7.14).

TABLE 7.14. PER CAPITA EXPENDITURE RELATIVE TO ACCESS TO BASIC SERVICES

MUNICIPALITY	AVERAGE POPULATION WITHOUT SERVICES	PER CAPITA EXPENDITURE WITHOUT ACCESS 2015 (S/.)	PER CAPITA EXPENDITURE WITHOUT ACCESS 2015 (US\$)
AREQUIPA	439	113,280	34,855
CALLAO	15,358	1,712	527
TRUJILLO	7,008	3,215	989
CHICLAYO	10,834	1,126	342
LIMA	4,884	76,366	23,497
PIURA	30,320	1,220	376
IQUITOS	11,082	2,005	617
HUANCAYO	6,662	3,150	969
CUSCO	6,422	8,229	2,532
CAJAMARCA	23,329	1,079	332

Source: Authors' elaboration based on data from SIAF-MEF.

### Extent of Investment in Capital Assets

The last proxy variable calculated for this indicator is based on the maintenance investment of the period 2007–16 (assuming a public asset life of 10 years), divided by the total capital expenditure in the period immediately preceding 2006–15. The indicator assumes that since 2006, the maintenance investment is related to the investment in 2006–15.

The average of this indicator in the first group is 3 percent. In the first group, the highest ratio is 7.4 percent in the province of Callao, and 6.2 percent in Piura, while the lowest ratios are in Chiclayo and Trujillo. In the second group, only Ica and Huanuco have a ratio higher than 3 percent, while in the third group, six municipalities have a ratio higher than 3 percent (see Table 7.15).

**TABLE 7.15. EXTENT OF INVESTMENT IN CAPITAL ASSETS IN THE 25 PROVINCIAL MUNICIPALITIES BY GROUP, 2007-16**

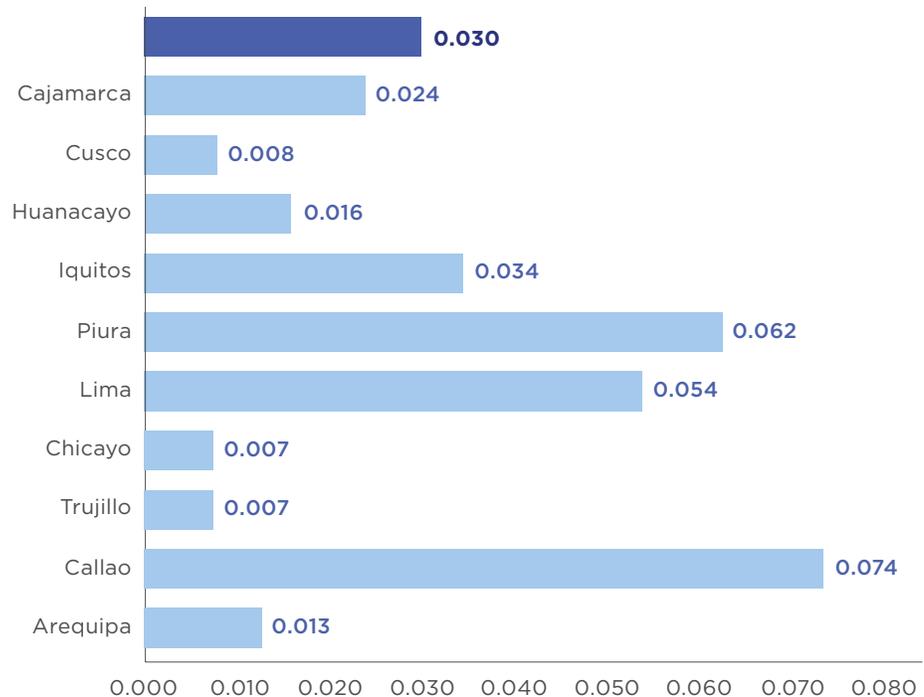
PROVINCE		EXTENT OF INVESTMENT IN CAPITAL ASSETS (IN PERCENTAGE)
LIMA	LIMA	5.4
GROUP 1	PROV. CALLAO	7.4
	PIURA	6.2
	MAYNAS	3.4
	HUANCAYO	1.6
	AREQUIPA	1.3
	CHICLAYO	0.7
	TRUJILLO	0.7
	GROUP 2	HUANUCO
ICA		3.2
HUAURA		2.6
CAJAMARCA		2.4
CORONEL PORTILLO		1.8
PUNO		1.7
TACNA		1.2
CUSCO		0.8
HUAMANGA		0.6

GROUP 3	TAMBOPATA	6.8
	PASCO	5.5
	HUANCAVELICA	4.7
	TUMBES	4.5
	HUARAZ	4.1
	MOYOBAMBA	3.7
	MARISCAL NIETO	1.5
	ABANCAY	0.7
	CHACHAPOYAS	0.4

Source: SIAF-MEF.

As Figure 7.5 shows, in the 10 largest municipalities in the sample, maintenance expenditure is slightly higher than the average (0.03), which suggests that these municipalities do not do more to maintain the infrastructure stock than other municipalities. In this group, Callao, Lima and Piura have a high ratio, while Cusco, Chiclayo, and Trujillo have low infrastructure maintenance indicators.

FIGURE 7.5. INFRASTRUCTURE MAINTENANCE FOR A SAMPLE OF MUNICIPALITIES



Source: Authors' elaboration based on Peru's MEF database, available at <https://datosabiertos.mef.gob.pe/>.

## Main Findings and Conclusions

This chapter has assessed the fiscal health of the main municipalities of Peru. The evidence sheds light on the local capacity to develop sustainably in the medium and long term. One of the first conclusions that can be drawn is that the enormous disparities in the economic and productive potential of municipalities warrant differentiated approaches to achieve sustainable growth. As such, strategies must be able to adapt to municipalities' economic situation, enabling them to exploit and improve the potential of each entity.

Rural municipalities have few or no resources of their own due to the scant economic and productive capacity of the inhabitants combined with their

limited capacity to generate own revenues (e.g., because of the lack of cadastral records in rural districts). Therefore, the MEF's Incentive Plan for the Improvement of Municipal Management establishes monetary incentives for municipalities that improve their collection capacity. The incentives apply only to the main cities (almost all of them urban), while rural municipalities have other incentives aimed at improving the provision of specific public services.

Additionally, within the main cities, on average, Type A municipalities have a much more solid and stable fiscal and financial position than the Type B municipalities. However, this capacity is a function of the greater population and economic dynamics existing in the first group, rather than better local financial management.

Of the 25 municipalities studied, Arequipa, Cusco, Huancayo, Lima, and Trujillo are more fiscally and financially sound, suggesting a greater potential to exploit measures aimed at promoting sustainable economic development in these locations. Yet, despite maintaining relatively high operating surpluses and low levels of debt (with the exception of Arequipa), there are opportunities to further improve strategies consistent with responsible fiscal management. For example, many of these municipalities maintain a high default rate on property tax (although some of them have tax administration agencies). Also, decisions regarding the generation and maintenance of infrastructure do not seem to be part of any long-term strategy.

Therefore, the national government should provide better tools to improve institutional capacity that enable municipalities to take advantage of opportunities for economic development in their localities. Local strategies should be developed that incorporate tools such as multi-year investment programming, an articulated strategic planning, and, most importantly, a broader framework for monitoring fiscal and financial behavior in the localities, beyond just verifying compliance with traditional financial standards.

Chapter

# 08

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BY  
MARTIN ARDANAZ,  
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## COMPARATIVE ANALYSIS OF MUNICIPAL FINANCIAL HEALTH IN LATIN AMERICA AND THE CARIBBEAN AND POLICY IMPLICATIONS

MUNICIPAL FISCAL  
HEALTH IN  
LATIN AMERICA



In the past three decades, most countries in LAC implemented decentralization reforms that have transferred responsibility to local governments to deliver key goods and services. For large municipal governments, this transfer has meant not only maintaining and expanding present levels of public services, but also meeting future expenditure needs. With the rapid urbanization experienced in LAC, this challenge also involves building or replacing infrastructure. Do municipalities in LAC have the fiscal health to take on these challenges? This book has assessed the fiscal health of cities in LAC, applying the integrated approach described in Chapter 2 to large cities in Brazil, Colombia, Mexico, and Peru. This chapter summarizes the main findings from the cases, discusses the state of municipal fiscal health in the region, and identifies policies to strengthen it.

## Summary of Findings from Brazil, Colombia, Mexico, and Peru

The Brazilian case study (Chapter 4) analyzed fiscal health measures for 12 of the 26 state capital cities for the period 2010-16. One of the most important findings is the wide variation among the 12 cities in terms of their economic and social indicators as well as their fiscal and technical capacity to deliver services and collect taxes. In general, the cities of the south and southeast (including Belo Horizonte, Rio de Janeiro, and São Paulo) perform better than cities in the north and northeast (such as Manaus, Recife, and Salvador). Although the findings show a similar trend in per capita taxes and expenditures —increasing until 2014-15 and declining thereafter— their results on fiscal measures are different. For example, reliance on own-source revenues is relatively greater in the more affluent southern and southeastern capital cities than the northern and northeastern ones although it improved over the six-year period throughout the country. Notwithstanding efforts to equalize spending authority among municipalities, differences among cities in fiscal health are still fairly large.

The proxy measures used for the state of infrastructure also indicate substantial variation among the 12 capital cities where, again, the southern and southeastern capitals fare better. The author of the chapter, Sol Garson, notes that the heavy reliance on capital transfers to fund infrastructure has increased the vulnerability of Brazilian cities because it is anticipated that these transfers will decrease in a downturn in the national economy. Cities have seen a sharp rise in the debt-to-tax ratio, even as taxes have been increasing. Renegotiation of federal debt in cities such as Rio de Janeiro reduced the amount of debt, but it remains significant. Subnational indebtedness (both states and municipalities) increased sharply after 2010, induced by incentives given by the federal government to maintain the level of public investment, which had been reduced by the 2008–09 international economic crisis, as well as the domestic economic and institutional crisis beginning in 2014 and deepening in 2015–16. Moreover, the federal government, directly through its financial agencies or by awarding guarantees to multilateral institutions had an important role in financing cities to host the World Cup and, in the case of Rio de Janeiro, the Olympic Games. Rio de Janeiro’s fiscal health worsened between 2014 and 2016.

Overall, the evidence suggests weak fiscal health in all 12 Brazilian capital cities and the need to improve tax management, particularly property tax, to increase own-source revenues, control personnel expenses, recover the capacity to provide services, and to invest.

The Colombian case study (Chapter 5) analyzed 23 major Colombian cities (departmental capitals) between 2011 and 2017 for which there is enough information on socioeconomic, fiscal, and infrastructure conditions. According to the authors of the chapter, Bonet and Perez, these cities experienced a convergence during this period: cities in poorer regions tended to improve their socioeconomic indicators faster than richer ones. Specifically, cities in the Caribbean and Pacific regions experienced greater increases in per capita income, expenditures, and taxes, accompanied by deeper reductions in unemployment rates. Moreover, they found that on the fiscal front, following budget constraints set by the fiscal responsibility laws, none of the 23 cities faced a deficit and, in general, indebtedness seemed to be under control.

Results from the Colombian case highlight the difficulty of making a general assessment of the fiscal health of local governments. Although Colombian cities do not seem to face deep fiscal health issues, there are marked regional differences. Coastal cities lag behind Caribbean ones and

Pacific cities seem to suffer from structural and long-term weaknesses, particularly related to the size and growth of the tax base and their capacity to raise tax and non-tax revenues. Another limitation of cities in these lagging regions is their capacity to pay debt obligations with taxes, thus showing low fiscal sustainability. On the other hand, the main issues for inner eastern and central cities are more related to population growth, cash flows and short-term sustainability, associated with growing demands for public services, cash-flow tightness and low capacity to meet short-term obligations.

The Mexican case study (Chapter 6) analyzed the fiscal health of 35 major municipalities, encompassing the state capitals as well as relatively large and economically significant non-capital cities. Mexico City, both a state and a municipality, was not included since it is not comparable with the others. The study shows interesting similarities in some fiscal indicators for cities with different socioeconomic characteristics. For example, municipal expenditures per capita are highest in municipalities that have a strong economy but also in municipalities that have a weak economic base and that rely more heavily on transfers (federal transfers account for 74 percent of municipal revenues, on average). Municipal revenue potential partly depends on the size of the economy (richer cities tend to collect more revenues) but also on tax collection efficiency and enforcement. A general decline in oil prices and their impact on the oil industry is reflected in poor economic performance for municipalities where these activities are concentrated (e.g., Centro). Similarly, a boom in light manufacturing (e.g., the automotive and aerospace industry) has boosted the economic performance of municipalities in the center of the country (e.g., Aguascalientes, Leon, and Queretaro).

Municipalities in Mexico balance their operating budgets but, as Duran-Fernandez note in Chapter 6, it is possible that balanced budgets have been achieved at the expense of declining services and infrastructure, which will need to be addressed in the long run. He found that municipalities with low revenues tend to adjust investment expenditures downward rather than run deficits. According to the author, debt policy appears to depend on the capacity to produce operating surpluses from own-source revenues rather than meeting infrastructure needs and prospective revenue induced by new investments. This result is quite different from Brazil. The analysis suggests that municipal fiscal strategies combine strengthening own-source revenues, control of public debt, and adjustment of public investment. An in-depth analysis of 15 municipalities in Mexico yields mixed results, with very few municipalities showing strong fiscal indicators overall.

In Peru (Chapter 7), the analysis of municipal fiscal health covered all the municipalities in the country and uses the classification defined by the MEF, which is based on population size, poverty rate, and economic potential. An in-depth analysis focused on 10 out of 25 provincial municipal capitals of the departments, which are the largest and most urbanized, with the greatest potential for economically sustainable development. The Peruvian case exhibits strong territorial heterogeneity, at an economic, demographic, geographic, cultural, and sociological level, which is reflected in major differences in fiscal health indicators across municipalities. Smaller municipalities experience poorer fiscal health compared to larger municipalities, and rural municipalities do not perform as well as urban municipalities. Rural municipalities have little or no own-source revenues because of a weak economic base and limited capacity to generate own revenues. As a result, urban municipalities collect more taxes than rural municipalities.

Property taxes, the main source of tax revenue in municipalities, have increased since 2010 throughout the country as a result of a municipal incentive plan for property tax collection, but municipalities still rely heavily on intergovernmental transfers. Often, these transfers are volatile because they depend on mining revenues. Per capita expenditures are higher in the smallest municipalities (with less than 500 urban households), in part because of their lower population density but also because revenues from mining are distributed mainly to rural cities where there are greater mineral reserves. Although debt is restricted at the local level, many municipalities have high debt loads. Smaller municipalities tend to have lower debt than larger ones but, as a percentage of their income, it is often higher. Local fiscal autonomy (measured by greater reliance on own-source revenues) has decreased for the 10 main municipalities since 2012, especially in Arequipa, Cajamarca, Cusco, Huancayo, Lima, and Trujillo.

The overall findings of the Peruvian case study suggest that the largest municipalities have been able to maintain a stable fiscal situation and tend to have greater fiscal autonomy than other municipalities. Tax collection capacity has increased, but the growth in tax collection in the largest municipalities has been lower than in other municipalities. The case study relied on access to basic services as a measure of the infrastructure gap as well as average investment per capita and concluded that the speed for closing the infrastructure gap is much greater in the larger cities than in the smaller ones.

# Comparative Analysis and Conclusions

Based on the findings summarized here, the following general conclusions can be drawn about the fiscal health of municipalities in LAC:

1. The concept of municipal fiscal health is complex. As Bonet and Perez find in the Colombian case study, every SNG is unique, as is the assessment of its fiscal health. For this reason, it is difficult to generalize, even though municipal governments in the region face similar challenges, such as vertical and horizontal fiscal imbalances, limited access to debt, and poor capital funding, among others.
2. Municipal fiscal health varies significantly across regions and cities. This is not surprising in a region characterized as one of the most unequal in the world (Busso and Messina, 2020), with large horizontal fiscal imbalances and no fiscal equalization instruments to address them (Muñoz, Pineda, and Radics, 2017). The cases clearly show differences in fiscal performance, health, and sustainability between cities in the northern/northeastern and south/southern states in Brazil, the Caribbean and Pacific coastal regions in Colombia, the different economic clusters in Mexico, and between small/rural and large/urban municipalities in Peru.
3. On the whole, however, large cities in LAC tend to have weaker fiscal health, except in Colombia. Although some countries show no overall fiscal problems—municipalities have on average balanced budgets, controlled and stable levels of debt, and mostly sound financial positions, in Colombia, Mexico, Peru, and to a lesser extent Brazil—this has been achieved through compliance with fiscal responsibility laws, the use of public spending and debt strategies, and reliance on regular and extraordinary federal transfers. It is concerning that the common adjustment strategy has been cutting investments, which jeopardizes local economic growth and development.
4. Several internal and external factors shape the fiscal health of cities in LAC. Among the most important are the size, diversity, and growth of the tax base, as well as local capacity to exploit revenue sources and manage expenditures prudently. These issues are more problematic

and prevalent among lagging regions, and they limit the ability of municipalities to provide infrastructure services, repay debt, and be held accountable for results. Other significant factors shaping the health and sustainability of municipal finances are the fiscal decentralization framework and intergovernmental relations. The extent of the vertical fiscal imbalance, the dependence on central transfers, and the existence of soft budget constraints provide incentives and disincentives, as shown in the contrasting cases of Mexico and Brazil vis-à-vis Colombia, for revenue generation, efficient spending, prudential borrowing and sound financial management, and fiscal transparency. In addition, there are important political economy dynamics underlying local political competition and municipal fiscal discipline and the pursuit of national investment objectives and the promotion of unsustainable debt financing strategies, as described in the Brazilian and Mexican cases.

5. In cities with poorer fiscal health, the negative consequences for local service delivery and the maintenance and expansion of urban infrastructure are evident. In Colombia, there are systemic differences between cities in the richer eastern region and those in the poorer coastal regions, where the latter are not able to maintain and repair their assets. The same holds true for Brazil, affecting the sustainability of urban infrastructure in cities of the lagged northern and northeastern states. Similarly, in Peru, all municipalities except for some major ones spend too little on maintenance of urban infrastructure, which results in deterioration rates much greater than the replacement rates. If urban infrastructure determines the attractiveness of a city for locating a business, insufficient availability and low quality of the stock and services can limit private investment and thus adversely affect local economic growth. This becomes a vicious cycle that could widen disparities among cities and regions in a country.
6. Overall, it is not enough for a municipality to achieve balanced budgets and good standing on various fiscal and financial variables. While this is certainly important and paves the way for cities to perform better, the ultimate goal of a well-functioning decentralization system is that municipalities are able to efficiently deliver the services and provide the infrastructure required. As shown throughout this monograph, cities can appear to be doing well on all of the other measures of fiscal health, but, unless we can measure the state of the infrastructure, we do not really know if they can continue to balance their budgets and maintain their infrastructure in a state of good repair. A city that is not systematically investing in its capital assets may be increasing deferred

replacement or maintenance costs down the road. It is important for national and local authorities to obtain and monitor this information to determine if cities are fiscally sustainable in the long run.

Future research on this interesting and rapidly evolving topic should focus on overcoming several limitations of the present study. Going forward, it would be useful to collect annual time series data so that it is possible to track trends in the city's fiscal health and get a better sense of where the city is heading. Annual calculations of fiscal indicators would provide an understanding of whether the fiscal health of individual cities is improving, which indicators are improving, and why. As noted earlier, a longer-term view will allow cities to devise a more strategic approach to managing their financial conditions.

In this regard, it is essential to monitor the evolution of the various fiscal, financial, and service aspects described here to assess the impact of the coronavirus crisis on the fiscal health of cities. Earlier accounts show revenue shortfalls, both in own-source revenues and fiscal transfers; substantial increases in spending, particularly on health care; growing demands for supporting local businesses and vulnerable residents through social protection networks; and pressures to finance investment projects with debt to reconstruct and reignite economic growth, in a scenario of deteriorating repayment capacities and higher financing costs (Muñoz et al., 2020; MacDowell and Rossi, unpublished paper; OECD, 2020, Smoke et al., forthcoming). These findings point out that the COVID-19 crisis is exposing and magnifying some of the structural problems in LAC related to low fiscal autonomy, regional disparities, vertical fiscal imbalance, and fragile fiscal sustainability described in this study, and will certainly have detrimental and possibly long-lasting effects on the fiscal health of cities.

In addition, although some countries monitor subnational public finances, such as Brazil, Colombia and Mexico (CAPAG, the municipal IDF, and the alert system, respectively), more often the systems focus on debt repayment capacity and financial condition or do not consider service and infrastructure delivery. In particular, while LAC countries have been making progress in the standardization and availability of public accounts, there are areas where there still are data gaps; the state of infrastructure is the biggest one. Except for Colombia, none of the three other countries studied were able to produce data on the asset consumption ratio, which measures the infrastructure needs of a city or the extent of investment in capital assets. Proxies used include access to services and capital expenditures. Capital expenditures provide information on how much is

being spent annually on infrastructure to repair or replace existing assets and acquire new assets. Although this measure and access to services both help to understand the infrastructure needs of a city, they do not truly reflect the amount of infrastructure assets that need to be repaired or replaced. Another measure for which data were scarce in all three case studies was tax arrears, or the extent to which residents and businesses are not paying taxes to their local governments. One aspect of improving fiscal health is increasing tax collection. It would be helpful to know the size and extent of the task to be done.

Moreover, it would be useful to understand the governance structures of the cities being compared to determine whether they are really comparable. For example, there are important differences between cities that are located in metropolitan areas versus cities of similar size that are not in metropolitan areas. One might expect, for example, that cities within metropolitan areas would have better fiscal health because they can share services (and costs) with other municipalities nearby. Thus, governance is another factor that impacts fiscal health and should be considered in future analyses.

## Policy Implications

In light of the above, the following are some key policy implications that should be considered by both national and SNGs to boost the fiscal health of municipalities:

**1. Revise expenditure and tax assignments.** All cases showed strong dependence on central government transfers and limited financial autonomy at the local level, even in large and main municipalities, arising from the imbalances between the significant spending responsibilities assigned (health, education, citizen security, water and sanitation) and the less robust, volatile, and undiversified tax sources granted to finance those services. Thus, to reduce the large vertical fiscal imbalances between own-source revenues and expenditures and the heavy dependence on intergovernmental fiscal transfers, a thorough review of the expenditure and tax allocations that underlie current decentralization systems in LAC should be conducted. A more balanced correspondence between these two pillars will improve municipal fiscal health and enable municipalities

to deliver services and provide and maintain the productive and social infrastructure increasingly needed in urban areas more feasibly and appropriately. To that end:

- Reform efforts should aim at devising a clear delineation of spending functions and responsibilities between levels of government. This revision should reduce inefficiencies arising from duplication—such as those found in education and health services in Brazil, Colombia, and Mexico (and citizen security in the latter)—and eliminate poor incentives for efficient spending associated with the lack of clear lines of accountability for the use of resources.
- Municipalities should be assigned additional sources of revenue that are more robust and buoyant, less volatile, and more diversified than those that they currently have in hand. These greater revenue powers would give municipalities much needed revenue sufficiency and stability. Considering the large differences between cities documented in this study, an asymmetric approach to revenue administration based on local endowments and capacity could be designed and implemented. Examples include the possibility of assigning authorities to upper levels of governments for conducting certain administrative tasks that demonstrate efficiency gains from economies of scale, such as billing and collection or even cadastral management, without undermining local autonomy for policy decisions. In this regard, it becomes increasingly important to improve tax coordination across and within levels of government and digitalization strategies that promote integration and interoperation of databases.

**2. Improve local revenue and spending management capacities.** As evidenced in the cases, local capacities for revenue, spending and debt management are limited, except for the very large municipalities in LAC. In terms of revenue, it is essential to improve the performance of the property tax, the most common source of revenues for municipalities in LAC. This would entail reforms to improve and simplify cadastral administration and the use of digital technologies to maximize revenues and reduce the cost of tax administration (Ahmad, Brosio, and Jiménez, 2019; Eguino and Erba, 2020), as well as implementing reforms that seek to counter the political economy factors and dynamics that limit policy and management at the local level (Ahmad, Brosio, and Poeschl, 2015; Bird and Slack, 2015; Bonet, Muñoz, and Pineda, 2014). Along with improvements in the property tax, cities in LAC could tap into the potential of land value capture mechanisms to finance local infrastructure more sustainably (Blanco, Fretes Cibils,

and Muñoz, 2016). In relation to expenditure, cities that face challenges in achieving stronger fiscal health need to do more with less, that is, devise strategies that allow them to prioritize and use public resources more efficiently to deliver local goods and services. Public procurement and investment management are key areas in this effort, particularly to boost the return on investment in infrastructure, as they have the potential to generate savings (i.e., reduce execution times and cost overruns) and reduce corruption and waste. Strengthening the capacity of city governments in these areas involves introducing and strengthening digital platforms to manage, in an integrated and strategic way, operational and financial planning, programming, and execution of bidding processes and investment projects. Also, there is a need to develop analytical techniques and methodologies to evaluate ex ante the feasibility and risks associated with bids and projects. At the central and state government levels, promising strategies, following an asymmetric approach based on local capacity, include collaborative procurement and demand aggregation, as well as intergovernmental strategic planning and multiyear investment programming. These strategies require coordination of intergovernmental financing and foster vertical and horizontal cooperation schemes that favor local governments.

**3. Design and implement fiscal equalization systems.** The cases presented highly unequal fiscal scenarios within countries, with differential states and prospects for municipal fiscal health, varying significantly depending on the tax bases available, service costs, and local capacities, among other factors. Incorporating equalization transfers and developing convergence schemes, currently non-existent in the region (Muñoz, Pineda, and Radics, 2017), would enable municipal governments to provide services and infrastructure in the quantity and quality required. These schemes have the potential to curb fiscal laziness and promote revenue mobilization. Equalization systems are critical to fostering a more balanced regional and city development. Likewise, countries need to better structure capital grants to cities that have territorial equity as an objective, to promote convergence on accumulated capital stocks and on paths of economic growth and development (Martinez-Vazquez and Timofeev, 2014). Implementing these types of transfers and grants would only be effective if coupled with greater revenue autonomy of municipal governments and the strengthening of their spending capacities.

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