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Por:

Gover Barja

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Municipal Viability in Bolivia

Gover Barja[1]

Abstract

This paper develops an updated diagnostic framework [2] to assess municipal viability in Bolivia and identifies the main territorial constraints that limit it. The analysis retains a six-dimensional conception of viability—fiscal, administrative, demographic, economic, service, and human-capital conditions—while refining key criteria to improve analytical precision and policy relevance. In particular, the administrative criterion is strengthened by incorporating the operations and maintenance (O&M) share, and the demographic criterion is reformulated to combine scale or compactness with demographic dynamism. Results show that only a minority of municipalities meet the minimum viability conditions, while an even smaller group meets the enhanced viability conditions. Fiscal viability emerges as the most severe bottleneck, followed by human capital, basic services, and demographic viability. A central finding is that demographic dynamism, rather than size alone, emerges as the more restrictive condition for territorial viability. The paper also integrates this individual municipal diagnosis with a companion system-level perspective developed elsewhere, showing that the same phenomenon can be understood both as a territorial distribution of constraints and as a developmental mechanism linking fiscal effort, services, and outcomes. Taken together, both perspectives suggest that decentralization policy in Bolivia requires differentiated interventions: incentive reforms at the system level and targeted support based on the specific deficits of municipalities. The framework is intended both as a diagnostic tool and a basis for future policy design.

Keywords: Municipal viability, Decentralization design, Territorial heterogeneity, Fiscal effort, Municipal development, Service provision, Bolivia

JEL Classification: H77, H72, R58, O18, H75

[1] PhD in Economics, Utah State University, USA. Member of the Bolivian Academy of Economic Sciences, ABCE La Paz. Email: gbarjad@gmail.com.

[2] This paper extends an earlier publication in Serie Debate Público 129 and is linked to a companion SEM study using the same municipal data.

1. Introduction

A persistent tension between institutional ambition and territorial heterogeneity marks municipal development in Bolivia. On paper, municipalities are expected to deliver basic services, support local development, and contribute to broader national goals of social inclusion and economic progress. In practice, however, municipalities differ enormously in their fiscal capacity, demographic conditions, economic base, service provision, and human-capital endowment. Some municipalities can sustain relatively favourable development trajectories, while many others struggle to meet even basic conditions of territorial viability.

This paper addresses that problem through the concept of municipal viability. The central question is simple but fundamental: under what conditions can a municipality sustain itself as a functioning territorial unit over time? Answering that question requires going beyond a narrow fiscal definition of viability. A municipality may execute a budget, receive transfers, or even maintain basic administrative routines, yet still lack the demographic, economic, social, or human-capital conditions needed for long-term sustainability. Viability must therefore be understood as a multidimensional concept.

The motivation for this paper is both analytical and practical. Analytically, there is a need for a diagnostic framework capable of capturing the territorial distribution of enabling conditions across municipalities. Practically, there is a need for a tool that can inform policy and help identify where municipal bottlenecks lie. In the Bolivian case, such a framework is particularly relevant because the country combines a formally ambitious decentralization model with sharp territorial disparities. Municipalities differ not only in size, but also in density, population dynamics, revenue effort, productive capacity, and social conditions. A useful viability framework must therefore be able to distinguish between municipalities that merely exist administratively and those that possess the minimum conditions for sustainable development.

This paper builds on an earlier viability exercise published as Serie Debate Público 129 by Fundación Jubileo, but develops it into a more rigorous and policy-oriented framework. The improvements are methodological rather than cosmetic. The administrative criterion is refined by incorporating operations and maintenance (O&M) alongside budget execution, thereby distinguishing between simple expenditure capacity and operational discipline. The demographic criterion is also refined by combining scale or compactness with demographic dynamism, so that territorial viability is no longer reduced to population size alone. These adjustments seek to make the viability framework more consistent with observed municipal realities and more useful for policy design.

The paper is also connected to a companion study that approaches the same municipal data from a different angle. In that companion paper, a system-level diagnosis is developed using structural equation modeling, showing how upstream municipal finance conditions influence poverty-relevant service provision and how services, in turn, influence human capital and local economic outcomes (Barja, 2026). That perspective identifies a positive developmental mechanism within the municipal system. By contrast, the present paper

focuses on the individual municipal diagnosis, asking how many municipalities actually possess the conditions needed to benefit from such a mechanism. The two studies are therefore complementary: one explains how the system works, while the other shows how unevenly the conditions required for that functioning are distributed.

This distinction is important because relying on only one of the two perspectives may lead to incomplete or even misleading conclusions. Looking only at the system perspective may suggest that municipal development is broadly working, since the estimated mechanism is positive. Looking only at the viability perspective may suggest the opposite, since the majority of municipalities fail to satisfy minimum conditions. Neither conclusion is sufficient on its own. The real challenge is to understand how a functioning system mechanism can coexist with widespread municipal fragility, and what that implies for policy.

The purpose of this paper is therefore threefold. First, it develops an updated and more analytically robust framework for measuring municipal viability in Bolivia. Second, it applies that framework to all municipalities in the country to identify the most binding territorial constraints. Third, it integrates the resulting individual diagnosis with the system diagnosis developed in the companion study, in order to derive a more complete and differentiated policy interpretation.

The analysis yields several central findings. First, only a minority of municipalities satisfy the minimum viability threshold, and an even smaller minority satisfy a more demanding threshold. Second, fiscal viability remains the most severe bottleneck, while human capital, basic services, and demographic viability are also highly restrictive. Third, one of the most important insights of the revised framework is that demographic dynamism, rather than size alone, emerges as the more restrictive condition for territorial viability. Fourth, the continuous viability index reveals a strongly unequal territorial structure, with a small set of municipalities functioning as high-performing territorial anchors far above the national norm. Finally, when these findings are read together with the companion system diagnosis, they suggest that decentralization in Bolivia contains a meaningful developmental mechanism, but that access to this mechanism is highly uneven across municipalities.

The rest of the paper is organized as follows. Section 2 presents the methodology, including the viability criteria, variables, data sources, thresholds, and aggregation rules. Section 3 reports the main results, first through the binary diagnosis and then through the continuous index of municipal viability. Section 4 integrates the viability perspective with the companion system perspective and develops a unified analytical and policy framework. Section 5 concludes with the main implications for municipal policy and future research.

2. Methodology: Criteria, variables, data, and cut-offs

2.1 Municipal Viability

Municipal viability refers to the capacity of a municipality, as a territorial unit, to sustain its institutional, economic, and social functions over time. A viable municipality can perform its legally assigned responsibilities, maintain service provision, and support local development without persistent structural dependence or institutional fragility.

Municipal viability is not a purely fiscal concept. Rather, it is multidimensional. It encompasses fiscal autonomy, administrative capacity, demographic sustainability, economic dynamism, infrastructure conditions, and the development of human and social capital. These dimensions interact. Weakness in one dimension may compromise performance in others, particularly over the long term.

Because municipal viability is not governed by a universal formula, its assessment necessarily involves normative and empirical judgment. In practice, governments and oversight bodies often rely on diagnostic frameworks or "best practice" indicators—such as fiscal effort, service coverage, population scale, or economic base—to evaluate municipal sustainability. The approach adopted here follows that tradition while adapting the criteria to the institutional and territorial context of Bolivia.

The viability criteria used in this study are structured around six dimensions:

Dimension I: Fiscal viability. It refers to the municipality's capacity to generate own-source revenues sufficient to support its responsibilities without exclusive reliance on intergovernmental transfers. Common indicators include the share of own revenue in total revenue, transfer dependence, and debt sustainability. Persistent fiscal dependence limits autonomy and weakens accountability mechanisms.

Dimension II: Administrative viability. It captures institutional capacity: the ability to plan, execute, and supervise programs and projects, as well as to manage financial and human resources effectively. Indicators typically include budget execution rates, staffing capacity, operational discipline, and transparency. A municipality lacking operational capacity may receive resources but fail to convert them into sustainable services.

Dimension III: Demographic viability. It reflects whether a municipality possesses sufficient population scale and settlement compactness to sustain basic services and benefit from economies of scale. Population size, density, and recent demographic dynamics are relevant indicators. Sustained demographic decline may erode the fiscal base and weaken long-term sustainability.

Dimension IV: Economic viability. It refers to the presence of a productive base capable of generating employment, income, and local value added. Indicators may include total economic scale, per capita productivity, sectoral diversification, and poverty incidence. A weak economic base constrains fiscal capacity and limits development prospects.

Dimension V: Service and infrastructure viability. This dimension assesses whether minimum standards of access to basic services and infrastructure are met. It reflects material living conditions and the municipality's capacity to retain population and attract economic activity.

Dimension VI: Human and social capital viability. Human capital (education and health) and social inclusion (e.g., female labor participation) influence productivity, cohesion, and institutional performance. This dimension is cross-cutting: weak human capital undermines fiscal effort, economic dynamism, and administrative effectiveness.

Importantly, this framework evaluates the viability of the municipality as a territorial system—not merely the performance of its municipal government. Outcomes reflect the combined influence of public authorities, private actors, civil society, and higher-level institutions operating within the territory.

2.2 Measuring Municipal Viability in Bolivia

Measurement uses cross-sectional variables derived from pre-pandemic and post-LMAD[3] sources from 2012 to 2019. Fiscal variables reflect 2017 municipal budgets; human capital and service conditions draw on 2012-2016 administrative indicators that capture structural slow-moving conditions; economic and population variables are from 2019 and more recent in some cases. The data itself comes from three sources: (i) the Municipal Atlas of the SDGs in Bolivia 2020 database[4], available online; (ii) a database from the Federation of Municipal Associations of Bolivia within its Local Economic Systems project (FAM-ARLAT)[5], available online; (iii) some complementary data published by the National Institute of Statistics (INE) which were not found in the two previous databases. Since the data from the Municipal Atlas are pre-pandemic (2012-2019), for consistency, the 2019 data from FAM-ARLAT was used.

A central methodological decision concerns the establishment of viability thresholds. Because no universal cut-offs exist, thresholds are derived from the empirical distribution of municipal indicators in Bolivia. Where possible, medians are used to define attainable yet demanding benchmarks, ensuring that viability standards reflect observable performance rather than aspirational targets. In selected cases, legal norms or institutional rules provide the threshold.

The variables taken from the Municipal SDG Atlas, FAM-ARLAT, or INE, along with the adopted decision thresholds, were as follows:

For economic viability, a combination of two variables was used: (i) municipal GDP, which captures the total scale of a municipality's economic activity, and (ii) GDP per capita, which captures the average economic intensity or productivity per inhabitant. Combined, they measure local, public, and private economic capacity, or the value added from its various economic sectors, emphasizing productivity. This information comes from the FAM-ARLAT database for 2019. As a viability decision rule, a proportion greater than or equal to the median was required; therefore, a municipality is economically viable if it passes both criteria.

For social or service viability, a combination of four variables or indicators was used, all of which come from the Municipal SDG Atlas (specifically SDG1): (i) the 2016 extreme energy poverty rate[6]; (ii) the 2012 Unsatisfied Basic Needs (UBN) in percent of the

[3] LMAD is the Spanish acronym for the Framework Law of Autonomies and Decentralization (Law 031 from 2010), which accompanies and derives from the new National Political Constitution of 2009.

[4] The Atlas report and database (Andersen et al, 2020) is produced with the support of SNDS Bolivia (part of the United Nations' global SNDS network); https://atlas.sdsnbolivia.org/#/ .

[5] The database was built by *Análisis Real-Latinoamérica* (ARLAT) with support from the United Nations; https://fam.org.bo/ .

[6] Measured as the percentage of households consuming less than 25% of the *Tarifa Dignidad* limit of 210 kWh/year.

population[7]; (iii) the 2012 Multidimensional Poverty Index[8]; and (iv) the 2012 access to three basic services in percent of households[9]. Combined, they measure basic service conditions with an emphasis on access to infrastructure. As a viability decision rule, a proportion less than or equal to the median was required for the first three indicators, and a proportion greater than or equal to the median was required for the fourth indicator. Therefore, a municipality has service viability only if it passes all four criteria.

For demographic viability (scale and dynamism), three variables are considered[10]: (i) population size (INE projection for 2020), which captures minimum scale; (ii) population density (FAM-ARLAT, 2019), reflecting settlement compactness and potential economies of scale in service provision; (iii) change in municipal population share between the 2012 and 2024 censuses, which captures recent demographic dynamism. A municipality is considered demographically viable if it satisfies a scale or compactness condition (population ≥ 10,000 inhabitants, consistent with LMAD, or density ≥ national median) and exhibits a non-declining population share. This formulation ensures that demographic viability reflects both structural scale and recent territorial trajectory, preventing mechanically high pass rates when multiple alternative thresholds are combined.

For administrative viability, a combination of two variables was used: (i) the budget execution rate, calculated as the ratio of executed budget to planned budget for 2017, expressed as a percentage. This variable implicitly captures the institutional capacity to plan, execute, and supervise programs and projects, as well as to manage human and financial resources. It comes from the Municipal SDG Atlas. As a viability decision rule, a proportion greater than or equal to 60% of minimum operational capacity was required, which is below the mean of 70.8% and the median of 72.1%; (ii) the operational and maintenance share (opex rate), calculated as the ratio of executed O&M to executed total[11]. As a viability decision rule, a proportion greater than or equal to the national median was required; the capex share is also reported for context analysis. Therefore, a municipality has administrative viability only if it passes both criteria. The inclusion of the O&M share alongside execution rate strengthens the criterion by distinguishing between mere spending capacity and operational discipline necessary to sustain service provision.

For fiscal viability, the 2017 proportion of municipal revenue from local taxes, expressed as a percentage of total revenue, was used (own-source revenue share). This variable excludes fiscal transfers and other income, such as municipal fees. It comes from the Municipal SDG Atlas. Because the observed mean (3.46%) and median (0.59%) are extremely low, they are not used as reference thresholds. Instead, a normative minimum of 20% own-source revenue is adopted to reflect meaningful fiscal autonomy.

For human capital viability, three variables were used: (i) the percentage of the population aged 19 or older who completed the secondary education level in 2012. This

[7] The UBN is a composite index produced by INE. Its components are inadequate: living spaces and materials; water and sanitation services; energy inputs; health; and education.
[8] Index elaborated by INESAD from the number of households with shortcomings in four or more dimensions out of nine, emphasizing the provision and use of basic services (Andersen, 2018).
[9] It refers to the electricity, water, and sanitation services.
[10] This criterion recognizes compactness and recent dynamics, not only size.
[11] This criterion adds the O&M share alongside execution to reflect the operational discipline associated with sustaining services.

variable captures a basic educational achievement that establishes a minimum of useful skills; (ii) the chronic malnutrition rate of children under 5 years of age in 2016. This health variable is very relevant in rural or high-poverty municipalities, and its solution requires a high degree of cooperation and social cohesion; and (iii) the overall labor force participation rate of women in 2012. Although this variable is more an indicator of socioeconomic inclusion than directly of social capital (trust and social networks), here it is considered a proxy for social integration and cohesion (fewer social barriers, higher degrees of empowerment and cultural openness related to trust in institutions and cooperation within society). The first variable comes from INE, and the other two are available in the Municipal SDG Atlas. As a viability decision rule, a proportion greater than or equal to the median was required for the first and third variables. For the second variable, a proportion less than or equal to the median was required. Therefore, a municipality has human capital viability only if it passes all three criteria.

Aggregating binary pass/fail outcomes across the six criteria produces an overall municipality assessment. Two thresholds are reported: (i) satisfaction of at least three of six criteria (minimum viability); and (ii) satisfaction of at least four criteria (enhanced viability).

In addition to the Binary Index of Municipal Viability (B-IMV), continuous standardized scores are computed for each criterion and aggregated to form a Continuous Index of Municipal Viability (C-IMV), allowing finer differentiation among municipalities.

Methodologically, the C-IMV was constructed in two steps: (i) the six criterion indices were first built; the fiscal index (own taxes normalized[12]), administrative index (average of normalized execution rate and normalized opex share), demographic index (average of normalized population, normalized density, and normalized change in population share), economic index (average of normalized GDP and normalized GDP per capita), services index (average of normalized extreme energy poverty rate, normalized UBN index, normalized multidimensional poverty index, and normalized three basic services index), and human capital index (average of normalized secondary education, normalized child malnutrition, and normalized women's labor force participation; (ii) each criterion index was then normalized to the 0-1 range, after which the six indices were summed and divided by six.

3. Results and interpretation

Table 1 summarizes the six viability criteria, their corresponding indicators, the decision rules used to determine compliance, and the proportion of municipalities that meet each criterion. As shown in the table, these results are derived from a larger dataset that reports the binary pass/fail outcome (1/0) for each of the 339 municipalities and each of the six criteria, forming the Binary Index of Municipal Viability (B-IMV). This municipal-level information is useful because it immediately reveals the specific areas in which each local government falls short. In practice, it provides a diagnostic tool that can guide municipal authorities and local stakeholders in identifying priority areas for improving territorial viability.

[12] Normalization refers to transforming the indicator using (x – min)/(max – min), where more is better. Normalization reverses when the indicator suggests less is better.

Table 1 indicates that, according to the minimum viability rule, only 27.1% of municipalities satisfy at least three of the six criteria and therefore are considered viable. The more demanding enhanced viability rule, which requires compliance with at least four criteria, is met by only 11.2% of municipalities. In other words, nearly nine out of ten municipalities fail to meet the enhanced viability threshold. From the perspective of individual criteria, the relatively low proportion of municipalities meeting each requirement (generally below 50%) suggests that all criteria represent binding constraints on municipal viability. However, their severity differs. Ordered from the most binding to least binding, the constraints are: fiscal viability, human capital viability, basic services viability, demographic viability, economic viability, and administrative viability.

Table 1: Criterion, indicators, and proportion of municipal viability

Criterion	Indicators (All Required)	Decision Rule (Pass)	% Viable	% Not Viable
1. Fiscal viability	1. Proportion of own-tax revenue (%)	≥ 20%	5.0%	95.0%
2. Human capital viability	1. Secondary education 2. Children's malnutrition 3. Women's labor participation	≥ median ≤ median ≥ median	14.7%	85.3%
3. Basic services viability	1. Energy poverty 2. Unsatisfied basic needs 3. Multidimensional poverty 4. Three basic services	≤ median ≤ median ≤ median ≥ median	31.9%	68.1%
4. Economic viability	1. Municipal GDP 2. Municipal GDP per capita	≥ median ≥ median	35.7%	64.3%
5. Administrative viability	1. Budget execution (%) 2. Opex share (%)	≥ 60% ≥ median	42.5%	57.5%
6. Demographic viability	1. Population, or 2. Density, and 3. Change in population share	≥ 10000 ≥ median > 0	35.1%	64.9%
Minimum viability:	Satisfies 3 or more of the 6 criteria		27.1%	72.9%
Enhanced viability:	Satisfies 4 or more of the 6 criteria		11.2%	88.8%

Source: Own.

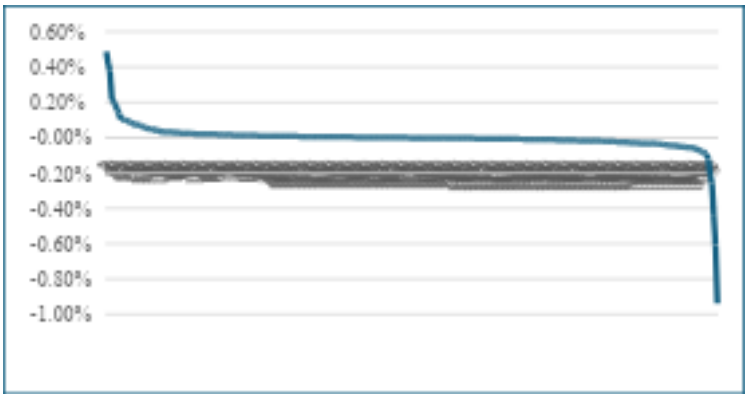
The ordering of constraints is particularly revealing. Fiscal viability appears as the most severe bottleneck, with only 5% of municipalities meeting the threshold of own-source revenues above 20%. This suggests that the majority of municipalities operate under extremely limited fiscal autonomy and depend heavily on intergovernmental transfers. At the same time, the relatively higher performance in administrative viability indicates that many municipalities possess a minimum level of operational capacity but lack the fiscal resources necessary to sustain development efforts. In other words, institutional capacity exists in many municipalities, but it is not matched by fiscal capacity.

The second major constraint is human capital viability, which reflects the structural accumulation of social conditions over long periods. The relatively low proportion of municipalities meeting the human capital threshold suggests that deficiencies in education,

nutrition, and female labor participation continue to limit the development potential of many territories. Because human capital evolves slowly, these deficits tend to persist across generations and can reinforce other forms of municipal vulnerability.

The revised demographic criterion deserves particular attention. If demographic viability were defined only by the legal population threshold (≥ 10,000 inhabitants), the pass rate would be higher. Allowing for scale or compactness (population ≥ 10,000 or density ≥ the median) would also yield a relatively permissive result. However, once the additional requirement of a non-declining population share, shown in Figure 1, is imposed, the proportion of demographically viable municipalities falls sharply to 35.1%. This shows that the binding condition is not size alone, but demographic dynamism. Many municipalities satisfy minimum scale or density conditions, but far fewer have maintained or improved their relative demographic position over time[13].

Figure 1: Change in population share 2012-2024



Source: Based on INE's census data.

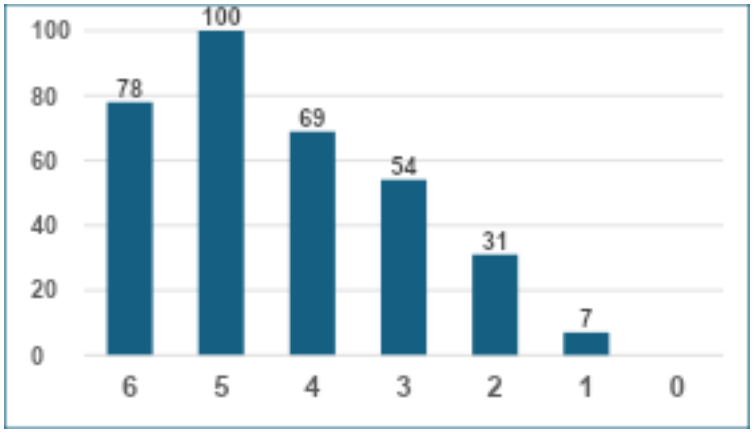
The revised administrative criterion also deserves particular attention. If administrative viability were defined only by the percent of budget execution (≥ 60%), the pass rate would be significantly higher. However, once the additional requirement of an opex share above the median is imposed, the proportion of administratively viable municipalities falls sharply to 42.5%. This shows that execution alone is not the binding condition; the more restrictive element is operational capacity, as proxied by the opex share[14].

Figure 2 further illustrates this overall pattern by showing the frequency distribution of the number of criteria satisfied by municipalities. The figure reveals that municipalities most commonly meet two or fewer criteria: 20.4% meet two criteria, 29.5% meet one criterion, and 23% meet none. Together, these municipalities represent 72.9% of the national total, highlighting the widespread structural challenges facing local governments.

[13] For comparison, the proportion of municipalities satisfying the legal threshold of population ≥ 10,000 alone is 57.8%. When density ≥ median is added as an alternative condition, the proportion rises to 73.7%. It falls to 35.1% only when the additional requirement of a positive change in population share is imposed, showing that demographic dynamism is the binding element of the revised criterion.

[14] For comparison, the proportion of municipalities satisfying the budget execution threshold of ≥ 60% alone is 84.1%. When the opex share ≥ median is added as an additional condition, the proportion falls to 42.5%, showing that opex share is the binding condition of the revised criterion.

Figure 2: Frequency of the number of criteria complied with



Source: Own.
Numbers on top of the bars are the number of municipalities.

It is also observed that 47.5% of municipalities satisfy at least two criteria. However, adopting such a threshold as the minimum viability requirement would provide an overly generous assessment and mask the structural weaknesses that the viability framework is designed to reveal.

The distribution shown in Figure 2 reveals a structural clustering of municipalities at the lower end of the viability spectrum. Rather than displaying a balanced distribution around the middle of the scale, the pattern is strongly concentrated among municipalities meeting two or fewer criteria. This suggests that municipal viability challenges in Bolivia are not isolated cases but reflect a systemic structural condition affecting the majority of local governments. At the same time, the distribution also indicates that it is unlikely that municipalities will fail across all dimensions simultaneously. Even among municipalities that perform poorly overall, it is common to observe at least one or two criteria being met. This suggests that most municipalities possess at least some latent strengths, even when their overall viability remains limited.

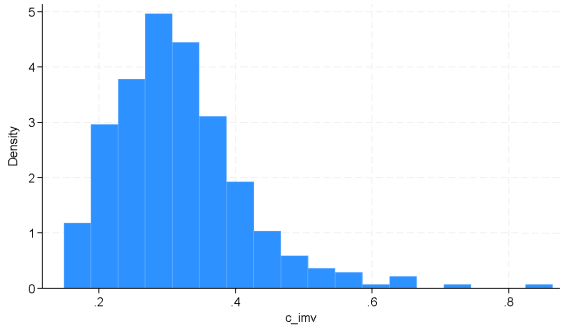
Notably, no municipality in Bolivia satisfies all six viability criteria simultaneously, although seven municipalities come close by meeting five of them: Viacha, Coroico, Quillacollo, Santa Cruz de la Sierra, Cotoca, Porongo, and Montero (the order is not meaningful). These municipalities represent the closest approximations to full territorial viability under the current framework. In practical terms, they illustrate that achieving high viability across multiple dimensions is possible, but remains extremely rare within the current territorial structure of the country. Most of these municipalities are located within or near major metropolitan areas, suggesting that proximity to dynamic urban centers plays an important role in supporting multiple dimensions of viability simultaneously.

Appendix Table 1 represents the same binary results disaggregated by department. Considerable regional heterogeneity is observed. The Department of Santa Cruz stands out, with 53.6% of its municipalities classified as minimally viable, far above the national average of 27.1%. The remaining departments range from 10% to 34.5%, with La Paz at the upper end and Potosí at the lower end. In most departments, the transition from minimum to enhanced viability—requiring the satisfaction of one additional criterion—represents a substantial hurdle. Tarija is the only department where the gap between the two thresholds is relatively small.

Examining criteria individually by department reveals distinct territorial patterns. The departments of Chuquisaca, Potosí, Pando, and Beni tend to perform relatively well in administrative viability, but show weaker results in other dimensions. Oruro does not appear to stand out in any particular criterion. These departments also display relatively low demographic viability, which may partially explain their overall patterns of limited municipal viability. In contrast, Cochabamba, La Paz, Tarija, and Santa Cruz tend to exhibit higher demographic viability. These departments also tend to perform better in other criteria, particularly basic services and economic viability in Tarija and Santa Cruz, human capital in La Paz, and basic services in Cochabamba.

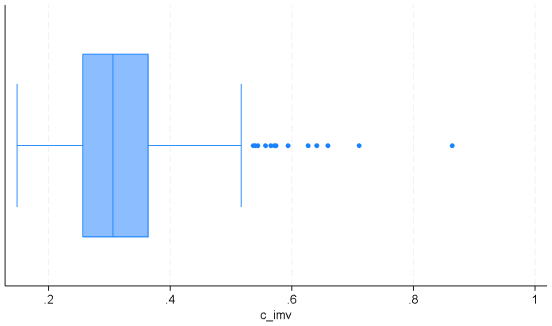
To complement the binary diagnosis, Figures 3 and 4 present the Continuous Index of Municipal Viability (C-IMV), which aggregates the six criteria into a normalized score ranging from 0 to 1. The histogram in Figure 3 shows the national distribution of C-IMV scores. Most municipalities fall within the 0.2 to 0.4 range, indicating low to moderate viability levels. Only a small number of municipalities reach significantly higher scores, forming a right-tail distribution. These represent a limited group of municipalities that achieve substantially stronger performance across multiple dimensions.

Figure 3: Histogram of the C-IMV



Source: Own.

Figure 4: Boxplot of the C-IMV



Source: Own.

Figure 4 provides a boxplot representation of the same distribution. Several key statistical features emerge. First, half of all municipalities have a viability score below the national median of approximately 0.306. Second, the interquartile range, which encompasses the middle 50% of municipalities, ranges from 0.255 to 0.364. Finally, a small number of municipalities appear as high-performing outliers, with scores above 0.6 and in some cases exceeding 0.8. Taken together, these results reveal a national landscape characterized by substantial territorial heterogeneity. While most municipalities operate under relatively

constrained viability conditions, a small group of municipalities achieves considerably higher levels of performance.

The Continuous Index of Municipal Viability complements the binary diagnosis by revealing the degree of heterogeneity within the municipal system. While the B-IMV identifies whether minimum conditions are met, the C-IMV captures the relative strength of viability conditions across municipalities. The distribution indicates that most municipalities operate within a relatively narrow band of low-to-moderate viability, whereas a small number achieve substantially higher scores. This pattern suggests that Bolivia's municipal system is characterized by a core-periphery structure, where a limited group of municipalities accumulates favorable economic, demographic, and administrative conditions, while the majority operate under significantly more constrained environments.

Appendix Table 2 reports summary statistics of the Continuous Index of Municipal Viability (C-IMV) by department, while Appendix Figure 1 presents the corresponding boxplots, allowing for a visual comparison of the distribution of municipal viability across regions. The Department of Santa Cruz stands out as having the highest median viability score (approximately 0.4), confirming its position as the department with the strongest overall municipal performance. However, the boxplot also reveals the widest dispersion, indicating significant heterogeneity among its municipalities. In contrast, Tarija exhibits a relatively high median viability together with a more compact distribution, suggesting greater consistency in municipal performance.

At the other end of the distribution, Chuquisaca displays the lowest median viability score (approximately 0.21), indicating that its municipalities generally face the most severe structural constraints. The Departments of Potosí, Oruro, and Pando also show relatively low median scores and narrower distributions concentrated in the lower part of the viability scale.

The boxplots also highlight the presence of several high-performing municipal outliers, particularly in La Paz, Cochabamba, and Santa Cruz. These observations correspond to large urban municipalities whose viability scores are substantially higher than those of the typical municipality within their respective departments. These municipalities can be interpreted as territorial anchors, operating under significantly more favorable economic, demographic, and administrative conditions.

The departmental patterns further highlight the role of regional economic geography in shaping municipal viability. Departments with stronger economic hubs and more dynamic population centers—such as Santa Cruz, La Paz, and Cochabamba—tend to display higher median viability levels. In contrast, departments characterized by lower population densities and weaker economic bases tend to show systematically lower viability scores. At the same time, the presence of high-performing outliers within several departments indicates that local success is possible even in challenging regional environments. These municipalities often function as local development anchors, generating economic activity and service provision that exceeds the typical conditions of their surrounding territories within an otherwise highly uneven municipal landscape.

Taken together, the results reveal a municipal system characterized by widespread structural constraints, strong territorial heterogeneity, and a small number of high-performing municipalities operating under more favorable conditions. The binary diagnosis highlights the scarcity of municipalities meeting minimum viability thresholds, while the continuous index

reveals substantial variation in the degree of viability across the country. At the same time, the existence of a limited group of municipalities approaching full viability demonstrates that the combination of favorable fiscal, demographic, economic, and institutional conditions is achievable, even if rare. These findings provide an empirical foundation for understanding the challenges of territorial development in Bolivia and motivate the policy discussion that follows.

These results also complement the system-level perspective developed in previous research, which shows how fiscal effort, administrative capacity, and service provision interact to generate development outcomes. While that perspective explains how the system functions as a whole, the viability framework presented here reveals how the conditions required for the system to operate effectively are very unevenly distributed across municipalities, reflecting long-standing territorial heterogeneity that uniform policy instruments have not been able to overcome.

4. Two perspectives, one phenomenon: integrating viability and system lenses

The previous section presented the diagnosis of municipal viability from an individual territorial perspective, showing the extent to which municipalities satisfy minimum fiscal, administrative, demographic, economic, service, and human-capital conditions. A complementary diagnosis, developed in a companion study using the same municipal data, approaches the problem from a systems perspective, focusing on how upstream fiscal and demographic conditions influence service provision and, through it, downstream human-capital and economic outcomes (Barja, 2026). Taken separately, each perspective provides only a partial understanding of municipal development. Taken together, however, they offer a more complete view of the same phenomenon: one explains how the municipal system works, while the other shows how unevenly the conditions required for that functioning are distributed across municipalities. The discussion begins by clarifying what each perspective captures and why both are needed to understand the municipal development process more fully.

4.1 What each perspective captures

This study combines two analytical perspectives on the same territorial phenomenon: the functioning of Bolivia's municipal system and the unequal conditions under which municipalities operate within that system. Although both perspectives rely on the same underlying municipal data, they answer different questions and therefore illuminate different aspects of the same problem.

The system perspective, developed in the companion structural equation modeling (SEM) study, is fundamentally relational. Its purpose is to identify how key municipal variables are connected and how influence is transmitted through the local development process. In particular, the SEM framework estimates how upstream conditions—especially own-source revenue effort, budget execution, operational expenditure, and demographic factors such as density—shape poverty-relevant service conditions, and how those service

conditions, in turn, influence human capital and local economic outcomes. In this sense, the system perspective captures the mechanism through which decentralization works. It identifies the structure of interactions among variables and reveals which channels appear to be most important in sustaining municipal development.

By contrast, the viability perspective developed in this paper is fundamentally distributive. Its purpose is not to estimate relationships among variables, but rather to diagnose the extent to which municipalities satisfy a minimum set of conditions required for sustainable functioning. It focuses on the municipality as an individual territorial unit, and asks whether that unit possesses the necessary fiscal, administrative, demographic, economic, service, and human-capital conditions to remain viable over time. In this sense, the viability perspective captures the distribution of enabling conditions across municipalities. It reveals not how the system functions on average, but how unevenly the prerequisites for that functioning are distributed.

The distinction is therefore not merely methodological but conceptual. The system perspective explains how municipal development is generated, while the viability perspective shows where that process is more or less likely to be sustained. The first is centered on mechanisms; the second on conditions. The first identifies pathways of influence; the second identifies territorial constraints and asymmetries.

This difference also implies that the two perspectives operate at different levels of abstraction. The system lens treats municipalities as part of an interconnected pattern and seeks to identify the dominant regularities of that pattern. The viability lens, in contrast, preserves municipal individuality. It shows that municipalities differ greatly in their capacity to mobilize revenue, maintain operations, retain population, support service provision, and generate economic and human-capital outcomes. Thus, while the SEM captures the average logic of the system, the viability framework captures the heterogeneity of the municipalities that compose it.

Importantly, neither perspective is sufficient on its own. A system perspective without a viability perspective may suggest that the mechanism of decentralization works, while overlooking the fact that many municipalities do not possess the minimum conditions required to benefit from that mechanism. Conversely, a viability perspective without a system perspective may reveal widespread municipal weakness, but without explaining how fiscal, administrative, demographic, and service conditions interact to generate those outcomes. For this reason, the two perspectives should not be seen as competing interpretations, but as complementary lenses on a common territorial reality.

Taken together, they provide a more complete understanding of municipal development in Bolivia. The system perspective explains the underlying logic of transmission—how fiscal effort, expenditure composition, and demographic conditions influence services and outcomes—whereas the viability perspective identifies the territorial distribution of the conditions under which that logic can operate. Their integration makes it possible to move beyond either a purely average or a purely descriptive diagnosis and toward a more differentiated understanding of municipal development.

4.2 Alignments and tensions between the two perspectives

Once placed side by side, the system and viability perspectives reveal a combination of important alignments and equally important tensions. These do not reflect inconsistency between the two approaches, but rather the fact that each captures a different analytical perspective of the same underlying reality.

A first point of alignment is that both perspectives identify fiscal effort as central. In the system perspective, own-source revenue effort appears as a key upstream condition influencing poverty-relevant service provision. From a viability perspective, fiscal viability is the most binding criterion, with only a very small proportion of municipalities meeting the threshold for minimum fiscal autonomy. Taken together, these findings suggest that fiscal effort is simultaneously the most important enabling mechanism and the scarcest territorial resource. In other words, what the system needs most to function effectively is precisely what most municipalities lack.

A second alignment concerns the role of service conditions. The SEM analysis shows that services are the main mediator between upstream municipal conditions and downstream human-capital and economic outcomes. The viability analysis, in turn, reveals that basic services viability is itself one of the most restrictive criteria at the municipal level. This means that the channel through which the system is expected to generate development is, for a large number of municipalities, only weakly developed. Again, the two perspectives converge: one identifies the importance of the mechanism, while the other reveals how limited its territorial basis remains.

A third alignment emerges in relation to demographic and spatial conditions. The SEM results indicate that demographic scale and density matter for how resources are transformed into service conditions and outcomes. The viability framework sharpens that insight by showing that demographic dynamism, rather than size alone, is the binding condition for territorial viability. Many municipalities may satisfy minimum scale or density requirements, yet fail to sustain or expand their relative demographic position. This points to a broader territorial concentration process that affects both the distribution of transfers and the long-term sustainability of municipal development.

A fourth alignment, less obvious but equally important, concerns the role of administrative capacity. The SEM results show that operational discipline matters for service provision, especially through the role of operations and maintenance. The revised viability framework incorporates this learning by strengthening the administrative criterion through the inclusion of the opex share in addition to budget execution. This does not merely improve measurement. It also reveals that administrative viability, while less restrictive than fiscal or human-capital viability, is meaningful only when execution is paired with operational discipline. In this sense, the system perspective has helped refine the individual diagnosis.

At the same time, the two perspectives also generate important tensions, or what may initially appear to be contradictions.

The most evident tension is the following: the system perspective produces a positive diagnosis, whereas the viability perspective produces a negative one. The SEM results show that the system contains a meaningful developmental mechanism: municipalities that exhibit greater fiscal effort and stronger operational discipline tend to improve service conditions, and these service improvements exert substantial downstream influence on human capital and, to a lesser extent, on the local economy. By contrast, the viability analysis shows that

only a minority of municipalities meet even the minimum viability threshold, and an even smaller minority meets the enhanced threshold. At first glance, these two conclusions may seem incompatible.

However, this tension is more apparent than real. The system perspective does not claim that all municipalities benefit equally from the developmental mechanism it identifies. Rather, it shows that such a mechanism exists. The viability perspective then reveals that the conditions required for that mechanism to operate are distributed very unequally across municipalities. This unevenness should not be interpreted as the deliberate product of policy, but rather as the cumulative outcome of long-standing territorial heterogeneity interacting with broadly uniform institutional rules. The apparent contradiction disappears once a distinction is made between mechanism and conditions. The system can function positively in principle while remaining inaccessible, incomplete, or fragile in practice for a large share of municipalities.

A second tension arises between average effects and territorial asymmetry. The SEM framework summarizes the dominant regularities of the municipal system, but those regularities are estimated as average relationships. The viability framework shows that municipalities are not distributed evenly around that average. Rather, they are clustered in highly unequal positions, ranging from a small group of high-performing municipalities to a much larger group with multiple structural deficits. This means that average system relationships may obscure the extent to which municipal performance is shaped by territorial position. The viability perspective, therefore, prevents the system diagnosis from being interpreted too optimistically or too uniformly.

A third tension concerns the interpretation of administrative capacity. In the SEM analysis, operational expenditure and own-source effort suggest that administrative and managerial capacity matter significantly for service provision. In the viability analysis, administrative viability is the least restrictive criterion of the six. This could be misread as a contradiction, but the two findings are actually compatible. The SEM indicates that administrative discipline matters when it exists; the viability analysis shows that basic administrative functionality is present in a larger share of municipalities than fiscal, service, or human-capital viability. This suggests that administrative capacity, while important, is not the main bottleneck in the current territorial structure. Rather, the more severe constraints lie elsewhere, especially in fiscal autonomy, human capital, and demographic dynamism.

A fourth and deeper tension concerns the interpretation of municipal success itself. From the system perspective, success is defined by the presence of a functioning transmission mechanism: stronger upstream conditions, better services, and stronger downstream outcomes. From the viability perspective, success is defined by the simultaneous fulfillment of minimum conditions across multiple dimensions. These are not identical standards. A municipality may perform relatively well in terms of one mechanism and still fail the broader viability test, especially if it is weak in dimensions that evolve more slowly, such as human capital or demographic trajectory. This is one reason why the two perspectives must be read together rather than substituted for one another.

These alignments and tensions lead to a crucial conclusion: neither perspective is misleading, but each is incomplete when used in isolation. An exclusive focus on the system perspective could lead to the conclusion that decentralization is broadly working, because the

estimated mechanism is positive. An exclusive focus on the viability perspective could lead to the opposite conclusion, namely that the municipal system is largely failing, because most municipalities do not satisfy minimum viability conditions. The first conclusion would be too optimistic; the second, too static. The real picture lies in their combination.

What emerges from their joint reading is a more nuanced interpretation: the system contains a functioning developmental mechanism, but that mechanism operates within a highly unequal territorial landscape. Some municipalities possess the conditions needed to benefit from it; many do not. The challenge for policy, therefore, is not only to strengthen the mechanism itself, but also to expand the territorial conditions under which it can operate effectively.

4.3 A unified framework: conditions and performance

The comparison developed above suggests that municipal development in Bolivia can be better understood through a framework that combines territorial conditions and system performance. The system perspective identifies whether the underlying municipal mechanism is strong or weak—particularly in terms of fiscal effort, operational discipline, and the capacity to translate resources into services—while the viability perspective shows whether municipalities rank high or low in the distribution of enabling conditions. Bringing these two dimensions together makes it possible to organize municipalities into a more interpretable structure.

Table 2 presents a useful way to do so, through a simple two-by-two framework. The first dimension distinguishes between stronger and weaker system conditions, as identified by the system perspective. In practical terms, stronger system conditions refer to municipalities where own-source revenue effort, administrative discipline, and demographic/spatial conditions are more favorable for the generation of services and outcomes. Weaker system conditions refer to municipalities where these upstream variables are limited or fragile. The second dimension distinguishes between higher- and lower-ranking municipalities in terms of the viability perspective, using the binary or continuous viability indicators as a summary of territorial position. The table yields four broad municipal situations.

Table 2: The four quadrants

	High viability	**Low viability**
Strong system conditions	*Quadrant I: Strong conditions and high viability*	*Quadrant II: Strong conditions but low viability*
Weak system conditions	*Quadrant III: Weak conditions but high viability*	*Quadrant IV: Weak conditions and low viability*

Source: Own.

Quadrant I: Strong conditions and high viability. Municipalities in this category combine favorable upstream conditions with strong territorial viability. They are the closest approximation to consolidated municipal systems. Their fiscal effort is stronger, their administrative and demographic conditions are more supportive, and their overall viability ranking is high. These municipalities are also the most likely to operate near the mechanism

described by the SEM perspective, in which fiscal effort and operational discipline improve service conditions and, through services, influence human capital and economic outcomes. In territorial terms, these municipalities function as anchors or local poles of development.

Quadrant II: Strong conditions but low viability. These municipalities appear to possess some of the upstream conditions that the system perspective identifies as favorable, but they remain relatively weak in the viability ranking. This combination may signal underperformance, coordination failures, or the existence of bottlenecks in dimensions not fully captured by upstream fiscal conditions alone. For example, a municipality may display acceptable fiscal effort or execution indicators but remain constrained by weak human capital, poor service conditions, or limited economic diversification. This quadrant is particularly important because it suggests that favorable conditions do not automatically translate into high overall viability.

Quadrant III: Weak conditions but high viability. This group includes municipalities that, despite operating under weaker system conditions, still attain relatively high viability levels. These can be interpreted as constrained achievers: municipalities whose viability is sustained by local adaptation, strategic advantages, or accumulated strengths in certain dimensions despite a less favorable system environment. In policy terms, these municipalities may offer useful lessons about institutional resilience, local leadership, or territorial assets that partially compensate for upstream weakness.

Quadrant IV: Weak conditions and low viability. This is the most vulnerable group. These municipalities combine weak upstream conditions with low territorial viability and are therefore least able to benefit from the developmental mechanism identified by the SEM perspective. They are likely to face multiple, mutually reinforcing constraints: low fiscal effort, weak human capital, limited service conditions, and negative demographic dynamics. This quadrant corresponds most closely to what may be called a territorial trap, where municipal development is constrained not by a single deficiency but by the interaction of several structural weaknesses.

This framework helps resolve an ambiguity that remains if either perspective is used alone. A municipality may rank poorly in viability because it lacks the structural conditions needed to sustain itself over time, but that does not necessarily imply that the system mechanism is absent. Conversely, a municipality may exhibit some favorable upstream variables while still failing to achieve broad viability. The two-by-two framework, therefore, distinguishes between being positioned to benefit from the system and actually displaying high viability as a territorial unit.

The framework is also useful because it introduces the possibility of different pathways of intervention. Municipalities located in the first quadrant may require policies aimed at consolidation, innovation, or scaling up. Those in the second quadrant may require targeted interventions to remove specific bottlenecks that are preventing favorable system conditions from translating into higher viability. Municipalities in the third quadrant may require protection and selective support to maintain their relative achievements under adverse conditions. Those in the fourth quadrant are likely to require more structural and coordinated interventions, involving not only municipal governments but also departmental and national actors.

Although presented here as a conceptual matrix, this framework can be operationalized empirically. Municipalities can be grouped according to their position in the viability ranking and according to whether their system conditions—such as fiscal effort, density, or service capacity—are relatively strong or weak. The exact operational thresholds may vary depending on the purpose of the exercise, but the analytical value of the framework lies in its ability to show that municipal problems are not all of the same kind. Some are primarily incentive problems, some are capacity problems, and others are structural territorial problems. At this stage, the framework is intended primarily as a heuristic device rather than as a fully operational empirical classification.

In this sense, the framework moves the analysis beyond a simple question of whether municipalities are viable or not. It introduces a more differentiated view of municipal development, one in which territorial position and system functioning are jointly considered. This is useful not only for analytical purposes, but also for policy design, because it suggests that the same policy instrument should not be applied uniformly to municipalities facing fundamentally different combinations of conditions and performance.

4.4 Policy implications: matching interventions to municipal realities

The integrated framework developed above has an important practical implication: municipal policy should not be uniform. If municipalities occupy different positions in terms of both territorial viability and system conditions, then the same intervention cannot reasonably be expected to produce the same results everywhere. A more effective approach is to match policy instruments to the type and depth of the constraints faced by each municipality.

At the broadest level, the combined reading of the system and viability perspectives suggests that policy must operate simultaneously on two fronts. The first is the system level, where institutional incentives, transfer design, and operating rules shape how municipal development works in general. The second is the individual municipal level, where concrete territorial deficits determine whether a municipality is actually able to take advantage of those incentives and rules. In this sense, the system perspective mainly informs how to improve the mechanism, while the viability perspective informs where and how to target support.

From the system perspective, the main lesson is that municipal development depends critically on fiscal effort, operational discipline, and the quality of service provision as a mediating channel. This implies at least three broad directions for policy.

First, intergovernmental transfers should become more effort-compatible. If own-source revenue effort is a key upstream condition for stronger service performance, then transfer systems should reward that effort rather than weaken it. This does not imply abandoning population-based or equalization criteria, which remain important for equity, but rather complementing them with a modest performance component linked to local revenue mobilization and basic operational compliance.

Second, greater emphasis should be placed on protecting operations and maintenance (O&M). The evidence suggests that service conditions depend less on capital spending alone than on the capacity to operate and maintain what has already been built. This implies that

municipal financing rules and project design should avoid privileging visible investment at the expense of recurrent operational capacity.

Third, territorial concentration should be recognized as a structural feature of the current system. Demographic dynamism, rather than size alone, has emerged as a critical condition of municipal viability. This means that policies based solely on current population size may inadvertently reinforce territorial polarization. A more balanced design would recognize both demographic realities and the need to prevent cumulative decline in lagging municipalities.

At the municipal level, the viability framework suggests that interventions should vary according to the type of deficit observed.

Municipalities with fiscal deficits require measures that strengthen their own-source revenue effort. These may include improvements in cadastre, billing, tax administration, enforcement capacity, and digital payment systems. In many cases, the problem is not simply a small tax base but a weak local capacity to identify, collect, and manage revenue streams.

Municipalities with administrative deficits require support in budget execution, procurement, maintenance planning, and routine service management. Because administrative viability is now defined more strictly through both execution and O&M share, failure in this dimension points not only to weak institutional capacity but also to insufficient operational discipline. In such cases, managerial strengthening may have immediate effects.

Municipalities with demographic deficits face a different kind of challenge. Since demographic viability now depends not only on size or density but also on recent population dynamics, municipalities losing population share may require responses that go beyond municipal management alone. In these cases, inter-municipal cooperation, shared services, functional territorial integration, and selective support for connectivity or local specialization may be more appropriate than simply expecting each municipality to become viable on its own.

Municipalities with weak service viability or human-capital viability require interventions aimed at the social foundations of territorial development. These deficits are especially important because they directly affect the municipality's ability to retain population, raise productivity, and generate fiscal capacity over time. In such cases, targeted service improvements, social infrastructure maintenance, and coordinated health and education interventions are likely to be more important than additional capital spending alone.

The two-by-two framework presented above provides a simple way to organize this differentiation.

Municipalities in Quadrant I (strong conditions, high viability) should be seen as platforms for consolidation and learning. These municipalities may benefit most from policies that reward innovation, strengthen metropolitan coordination, or support the diffusion of good administrative practices.

Municipalities in Quadrant II (strong conditions, low viability) require more targeted interventions. Their problem is not the complete absence of favorable conditions, but the failure to transform those conditions into broad viability. In such cases, the priority should be to identify and remove specific bottlenecks, particularly in service provision, human capital, or local coordination.

Municipalities in Quadrant III (weak conditions, high viability) deserve particular attention because they demonstrate that relatively good outcomes are possible even in constrained environments. These municipalities may offer valuable lessons on local adaptation, institutional resilience, or strategic prioritization. Policy should seek to preserve and scale what is already working.

Municipalities in Quadrant IV (weak conditions, low viability) require the deepest and most coordinated forms of intervention. In these cases, expecting municipal effort alone to overcome structural disadvantages would be unrealistic. Support may need to come through stronger departmental or national involvement, territorial integration strategies, minimum service guarantees, and reforms in transfer design that prevent cumulative decline.

The overall implication is that municipal policy in Bolivia should be layered rather than uniform. Some problems are primarily incentive problems, which call for changes in transfer formulas or performance rules. Others are capacity problems, which require managerial support, technical assistance, or improved operational systems. Others are structural territorial problems, linked to geography, demographic decline, or a weak economic base, which require broader territorial and intergovernmental solutions.

This distinction matters because one of the main risks in decentralization policy is to apply the same instrument to municipalities facing fundamentally different constraints. A municipality that is fiscally weak but demographically dynamic does not require the same response as a municipality that is fiscally weak, losing population, and lacking minimum service conditions. The integrated framework developed here helps identify those differences more clearly.

Ultimately, the value of combining the viability and system perspectives lies precisely in this capacity for differentiation. The system perspective shows which mechanisms should be strengthened in general. The viability perspective shows where those mechanisms are unlikely to operate unless deeper territorial constraints are addressed first. Policy becomes more effective when both insights are used together.

Taken together, the viability and system perspectives provide a more complete diagnosis of municipal development in Bolivia than either could offer on its own. The system perspective shows that a meaningful developmental mechanism exists, linking fiscal effort, operational discipline, services, and downstream outcomes. The viability perspective shows that the conditions required for that mechanism to operate are distributed very unevenly across municipalities. Their integration, therefore, makes it possible to distinguish between municipalities that are merely part of the system and those that are actually positioned to benefit from it. This combined reading not only resolves the apparent tension between a positive system diagnosis and a negative viability diagnosis, but also provides a more differentiated basis for policy, one that recognizes that municipal problems vary in nature, depth, and territorial context.

5. Conclusions

This paper develops a diagnostic framework to assess municipal viability in Bolivia and uses it to identify the main territorial constraints on long-term municipal functioning. The analysis

adopts a multidimensional logic of viability—fiscal, administrative, demographic, economic, service, and human-capital conditions—based on key criteria, indicators, and cut-offs for analytical precision and policy relevance.

The results reveal a municipal landscape marked by widespread structural fragility and strong territorial heterogeneity. According to the binary diagnosis, only a minority of municipalities satisfy the minimum viability threshold, and an even smaller minority satisfy the enhanced threshold. No municipality satisfies all six criteria simultaneously, and only a handful come close. From the perspective of the individual criteria, fiscal viability emerges as the most severe bottleneck, followed by human capital, basic services, and demographic viability. Administrative viability, while comparatively less restrictive, remains far from universal once operations and maintenance (O&M) discipline is taken into account.

One of the most important findings is that demographic dynamism, rather than size alone, becomes the binding condition for territorial viability. Many municipalities satisfy minimum population or density conditions, but far fewer have maintained or increased their population share over time. This indicates that the problem is not only one of current scale, but of territorial trajectory. In a context where intergovernmental transfers are closely linked to population, demographic stagnation or decline becomes a structural risk factor for long-term municipal sustainability.

The Continuous Index of Municipal Viability (C-IMV) complements the binary diagnosis by showing that municipal viability is not only scarce but also highly unequal. Most municipalities cluster in the low-to-moderate range, while a very small group of municipalities occupies a clearly superior position. These high-performing municipalities function as territorial anchors within the national municipal system, concentrating more favorable fiscal, demographic, economic, and service conditions than the national norm.

A central contribution of this paper is that it does not treat the viability diagnosis in isolation. Instead, it explicitly connects it to a companion system-level diagnosis developed in Barja (2026), which uses the same underlying municipal data to estimate how upstream municipal conditions influence service provision and downstream outcomes. That study shows that the municipal system contains a meaningful developmental mechanism: greater fiscal effort and stronger operational discipline improve service conditions, and those service conditions exert a substantial influence on human capital and, to a lesser extent, on the local economy. The viability analysis presented here shows, however, that the territorial conditions required for that mechanism to operate are very unevenly distributed across municipalities, reflecting long-standing territorial heterogeneity that uniform policy instruments have not been able to overcome.

This combined reading resolves what might otherwise appear to be a contradiction. The system perspective suggests that decentralization can work, while the viability perspective suggests that many municipalities remain structurally weak. These are not incompatible conclusions. Rather, they indicate that the developmental mechanism exists, but access to it is highly unequal. The system can function positively in principle, but many municipalities do not possess the minimum fiscal, demographic, service, or human-capital conditions required to benefit from it fully. In this sense, the viability perspective reveals the territorial limits of the system perspective, while the system perspective explains the logic through which more viable municipalities convert conditions into outcomes.

This distinction has direct policy implications. At the system level, the evidence supports reforms that strengthen effort-compatible transfers, protect O&M discipline, and reduce the tendency for capital spending to crowd out operational sustainability. It also suggests that transfer design should more explicitly account for territorial concentration dynamics, rather than relying solely on static, population-based allocation rules. At the municipal level, the viability diagnosis indicates the need for differentiated interventions. Municipalities with fiscal deficits require stronger own-source revenue systems; those with administrative deficits require improvements in execution and O&M management; those with demographic deficits may require inter-municipal cooperation and territorial integration; and those with weak service and human-capital viability require more direct interventions in the social foundations of local development.

More broadly, the paper suggests that municipal development policy in Bolivia should move away from uniform approaches and toward layered and differentiated strategies. Some municipalities face incentive problems; others face capacity problems; others face structural territorial traps. The same policy instrument is unlikely to be effective across all of these contexts. The combined use of system and viability perspectives offers a way to diagnose these differences more clearly and to respond with greater precision.

Finally, the framework developed here opens several directions for future work. The viability indicators can be used to construct municipal typologies, explore alternative transfer simulations, or identify municipalities at risk of long-term decline. Likewise, the interaction between demographic trajectory, transfer formulas, and local fiscal effort deserves deeper analysis. In this sense, the viability framework is not only a diagnostic tool but also a platform for further research on territorial development and decentralization design in Bolivia.

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Appendix Table 1: Percentage of municipal viability by departments and criteria

Criterion	SCZ	TAR	LPZ	BEN	CBB	PAN	CHQ	ORU	POT	Average
1. Fiscal viability	17.9%	0.0%	3.4%	0.0%	6.4%	0.0%	**0.0%**	2.9%	0.0%	3.4%
2. Human capital viability	5.4%	9.1%	43.7%	0.0%	0.0%	**6.7%**	0.0%	11.4%	7.5%	9.3%
3. Basic services viability	71.4%	90.9%	**17.2%**	31.6%	40.4%	13.3%	13.8%	17.1%	15.0%	34.5%
4. Economic viability	67.9%	81.8%	34.5%	**31.6%**	34.0%	0.0%	31.0%	22.9%	12.5%	35.1%
5. Administrative viability	51.8%	27.3%	36.8%	63.2%	40.4%	53.3%	55.2%	22.9%	**42.5%**	43.7%
6. Demographic viability	37.5%	27.3%	55.2%	**21.1%**	46.8%	20.0%	17.2%	20.0%	15.0%	28.9%
Minimum viability (≥ 3)	53.6%	27.3%	34.5%	31.6%	**21.3%**	13.3%	13.8%	8.6%	10.0%	23.8%
Enhanced viability (≥ 4)	26.8%	27.3%	14.9%	0.0%	8.5%	**6.7%**	3.4%	2.9%	0.0%	10.1%

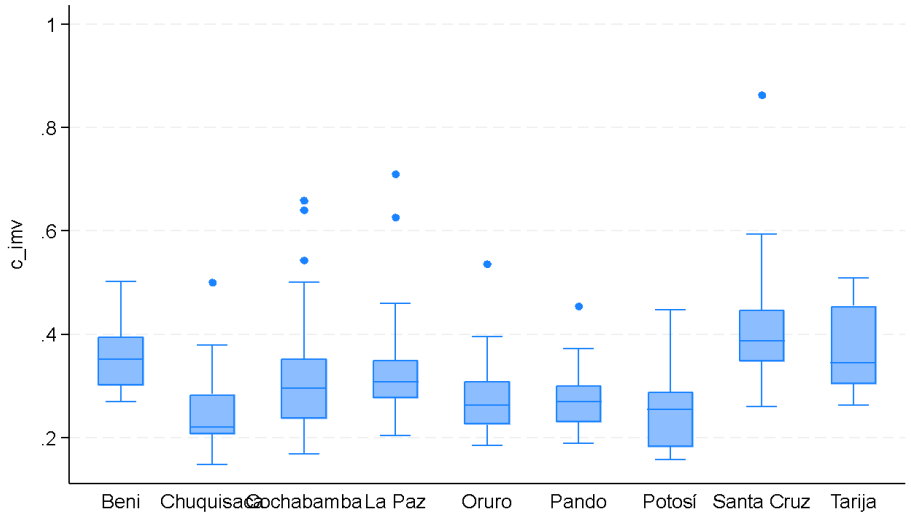
Source: Own. Median numbers are in bold.

Appendix Table 2: C-IMV statistics by Department

Department	Mean	Median	Max	Min
Santa Cruz	0.4102497	0.3869634	0.8634257	0.2599178
Tarija	0.3755297	0.3449093	0.5089648	0.262224
Beni	0.3550207	0.3511021	0.5022335	0.2691422
Cochabamba	0.3178771	0.2957269	0.6588593	0.1676373
La Paz	0.3176425	0.3078563	0.7103081	0.2039836
Pando	0.2805853	0.2694673	0.4544917	0.1884463
Oruro	0.2775789	0.2623611	0.5360943	0.184315
Potosí	0.2561311	0.2539579	0.4477321	0.1569147
Chuquisaca	0.2481834	0.2196167	0.5004311	0.1481092
National average	**0.3179703**	**0.3058842**	**0.8634257**	**0.1481092**

Source: Own

Appendix Figure 1: Boxplot by Departments



Source: Own.