

# Economic Changes in the City of Quevedo, Ecuador: A Community Participation-Based Perspective

## *Cambios económicos en la ciudad de Quevedo-Ecuador: Una perspectiva basada en la participación comunitaria*

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### Abstract

This study analyzes economic changes in the city of Quevedo from a perspective grounded in community participation. The objective of this study was to examine how community participation influences local economic transformations, under the hypothesis that such participation significantly contributes to generating positive changes, including greater social inclusion and employment dynamism. The methodology followed a quantitative approach with a non-experimental, cross-sectional design. A survey was administered to 100 households in the Quevedo canton, and the data were analyzed using a multiple linear regression model to assess the impact of variables such as community participation, area of residence, educational level, number of employed household members, and access to basic services on family income. The results indicate that the number of employed household members and living in an urban area are the most significant factors in explaining family income. Community participation showed a positive but not statistically significant association in the short term. Educational level had a modest effect. It is concluded that, although the community values participation, its direct economic impact is limited in the short term. Multidimensional public policies are recommended, combining job creation, investment in rural infrastructure, alignment of education with labor market demands, and the strengthening of social capital to promote endogenous and sustainable development.

**Key words:** Entrepreneurship; economic development; local economic transformations; community participation.

### Resumen

Este estudio analiza los cambios económicos en la ciudad de Quevedo, desde una perspectiva basada en la participación comunitaria. El objetivo de este estudio fue examinar cómo la participación de la comunidad influye en las transformaciones económicas locales, con la hipótesis de que dicha participación contribuye significativamente a generar cambios positivos como mayor inclusión social y dinamización del empleo. La metodología fue cuantitativa, con un diseño no experimental y transversal. Se aplicó una encuesta a 100 hogares del cantón Quevedo, y los datos fueron analizados mediante un modelo de regresión lineal múltiple para evaluar el impacto de variables como la participación comunitaria, la zona de residencia, el nivel educativo, el número de personas empleadas y el acceso a servicios básicos sobre el ingreso familiar. Los resultados indican que el número de personas ocupadas en el hogar y la residencia en zona urbana son los factores más significativos para explicar el ingreso familiar. La participación comunitaria mostró una asociación positiva pero no estadísticamente significativa en el corto plazo. El nivel educativo tuvo un efecto modesto. Se concluye que, aunque la comunidad valora la participación, su impacto económico directo es limitado a corto plazo. Se recomiendan políticas públicas multidimensionales que combinen generación de empleo, inversión en infraestructura rural, alineación educativa con el mercado laboral y fomento del capital social para un desarrollo endógeno y sostenible.

**Palabras clave:** Emprendimiento; desarrollo económico; transformaciones económicas locales; participación comunitaria.

## INTRODUCTION

Over the past few decades, various studies, such as that by Pérez-Cornejo *et al.* (2023), have highlighted the crucial role that citizen participation plays in the economic and social transformation of cities. In urban contexts where social disparities, unemployment, and informality persist, actively involving the community in the planning and implementation of local initiatives can be a decisive factor in achieving more equitable and sustainable development (Tanrikul, 2023). Research such as that conducted in the city of Valencia demonstrates that community involvement helps revitalize the local economy, recover public spaces, and foster greater social cohesion, while also strengthening institutional trust and generating redistributive benefits (Peris & Bosch, 2020).

In the case of Ecuador, this approach is particularly relevant for mid-sized cities such as Quevedo, an urban center with a strong agro-industrial sector but also facing structural challenges in terms of inequality, informal employment, and limited citizen participation in development processes (Gallardo Toapanta *et al.*, 2022). Quevedo has undergone significant economic changes over time, influenced by both global dynamics and local actions. However, these changes have not been sufficiently analyzed from the perspective of social participation, which limits a comprehensive understanding of the development process in the region (Bravo Coello *et al.*, 2024).

Nowadays, there is a gap in the academic literature regarding how the Quevedo community contributes to, drives, or shapes the economic changes taking place in the city (Mejía Castro *et al.*, 2024). Although neighborhood entrepreneurship initiatives, productive associations, and collaborative networks exist, they have not been systematized or evaluated in terms of their impact on the local economy. The identification of this problem constitutes the starting point of this research: to what extent and in what ways has community participation influenced economic changes in the city of Quevedo in recent years?

The importance of this study lies in its potential to contribute both to the theory of participatory local development and to the formulation of more inclusive public policies. Understanding the local economy from the perspective of those who drive it—residents, community leaders, and

social organizations—enables the development of proposals that are more contextually relevant, effective, and sustainable. Furthermore, strengthening participatory processes helps foster a more active, resilient, and co-responsible citizenry in the development of their environment (Sosa Chicaiza *et al.*, 2025).

This study falls within a field of growing relevance for territorial development in Latin America, where it is recognized that solutions to structural problems cannot be solely institutional or business-driven, but must actively involve citizens as agents of territorial transformation (Herrero Olarte *et al.*, 2025). In this regard, Quevedo represents a valuable case study for exploring how the community can become a driver of economic change from the bottom up.

### Local economic development

Local economic development is a strategic process that seeks to leverage a community's endogenous capabilities to drive economic growth, generate employment, and improve the living conditions of the population (Malizia *et al.*, 2020). According to Bennett (2021), this development must be based on a territorial vision, in which local resources, talents, and dynamics are coordinated through participatory and inclusive planning. Unlike centralized models, the local approach allows for greater adaptability to the specific realities of each territory, thereby promoting sustainable and effective solutions to economic problems (Asher & Novosad, 2020). This model also values local knowledge, the strengthening of human capital, and cooperation among public, private, and social actors.

In the case of Quevedo, a medium-sized city in Ecuador with a strong agricultural focus, local economic development has been linked primarily to the strengthening of the agricultural sector, regional trade, and transportation (Sosa Chicaiza *et al.*, 2025). The production of bananas, cacao, and African palm, along with the rise of small urban enterprises, has created a dynamic economic base that has enabled the expansion of local and regional markets (Macías Alcívar, 2024). However, for this development to be sustainable, it is necessary to continue promoting training programs, access to credit, agricultural modernization, and participatory territorial planning that involve all sectors of the Quevedo community (Oviedo-Bayas *et al.*, 2020).

## Community participation and local governance

Community participation is an essential component for achieving sustainable and legitimate economic change (Toala Rivas *et al.*, 2024). According to Ordoñez *et al.* (2021), participation can be understood as a ladder of levels, ranging from manipulation to full citizen empowerment. When citizens and social organizations actively participate in identifying problems, designing solutions, and making decisions, the social fabric is strengthened and a democratic culture is fostered (Caldas-Jara *et al.*, 2023). Furthermore, participation enables public policies to truly respond to local needs and priorities, which is crucial for ensuring the success of economic development processes (Herrera & Jara-Iñiguez, 2023).

In Quevedo, various community participation initiatives have demonstrated their transformative potential (González Osorio *et al.*, 2024). For example, farmers' associations have launched agricultural fairs, community banks, and direct-marketing projects, with the support of local organizations and universities. In the same way, parish councils and women's groups have promoted entrepreneurship and microcredit management initiatives, contributing to the financial inclusion of vulnerable sectors. According to Escobar Terán *et al.* (2025), this type of participatory governance strengthens social capital and improves the effectiveness of public policies. The institutionalization of these spaces for participation represents a key opportunity to consolidate a truly inclusive economic development model in the city (Ordóñez Gavilanes *et al.*, 2022).

## Economic transformations in urban areas

Cities, as dynamic hubs of social and economic interaction, are constantly changing due to structural factors such as globalization, government policies, migration flows, and the adoption of new technologies (Sequera & Gil, 2023). According to Gómez-Villanueva *et al.* (2021), urban space is not neutral but rather represents a field of contention where various actors seek to appropriate the resources and opportunities offered by the city. These economic transformations not only alter the urban landscape but also the way in which production, employment, and access to goods and services are organized. Intermediate cities, in particular, face the challenge of adapting to these changes without losing their identity and social cohesion (Jiménez-Arévalo & Barrera-Fernández, 2024).

In the case of Quevedo, these transformations are evident in several ways: the growth of informal trade in streets and markets, the unplanned expansion of peripheral areas due to rural-urban migration, the reorganization of agricultural marketing routes, and the emergence of new economic actors, such as community entrepreneurs and small cooperatives (Salazar Arias *et al.*, 2021). These changes have created both opportunities and challenges. On the one hand, the urban economy is revitalized and new employment opportunities are created; on the other hand, however, problems such as informality, job insecurity, and a lack of urban planning are exacerbated. Addressing these transformations requires a comprehensive vision that integrates public policies, citizen participation, and territorial planning with an inclusive and sustainable approach (Franco Cedeño *et al.*, 2022).

## Theory of social capital and endogenous growth

The Endogenous Growth Theory states that the economic development of a region does not depend exclusively on external factors, but rather on internal variables such as human capital, physical capital, innovation, and especially social capital (Ponzetto & Troiano, 2025). This theory posits that communities can foster their economic growth through the accumulation of knowledge, improvements in education, and the strengthening of social networks that promote cooperation and collective learning (Gannon & Roberts, 2020).

From this perspective, social capital—understood as the set of trusting relationships, shared norms, and networks of cooperation among individuals and organizations—becomes an unconventional productive factor capable of enhancing the performance of available physical and human resources (Artigas *et al.*, 2017). Thus, community participation, membership in grassroots organizations, and trust among local actors not only strengthen social cohesion but also have positive effects on economic indicators such as household income, job creation, and resilience to crises (Mozas Moral *et al.*, 2020).

Applied to the context of Quevedo, this theory helps us understand how the active involvement of the population in community initiatives, together with adequate levels of education and social organization, contributes to local economic development (Macías Alcívar, 2024).

Within this framework, development is not an automatic result of external investment, but rather an endogenous process fueled by the community's own capabilities and decisions (Mejía Castro *et al.*, 2024).

Despite the importance of social organization in local development, questions remain about the true extent of its impact relative to structural and demographic variables in specific contexts. Therefore, this study poses the following research question: How does community participation, in conjunction with factors such as educational attainment and access to services, influence economic changes and household income in the Quevedo canton? To address this question, the study set out to analyze economic changes in the city of Quevedo from a perspective focused on community participation, assessing its relative importance compared to other factors influencing local economic well-being.

## METHODOLOGY

### Research focus, scope, and design

The present study was conducted using a quantitative approach with the aim of measuring and analyzing the relationship between community participation and economic changes in the city of Quevedo. This approach allowed us to work with observable and quantifiable variables, aimed at establishing statistical patterns regarding the impact of social, human, and physical capital on local economic indicators such as average income and employment (Hernández Sampieri & Mendoza Torres, 2020). The main data were collected through a structured survey administered to members of the Quevedo canton community, which provided direct evidence of the level of community involvement and their perceptions about recent economic changes (Mejía Castro *et al.*, 2024).

The study adopted a descriptive-explanatory approach, as it sought not only to identify relationships between variables but also to understand the extent to which community participation influences processes of economic change. This explanatory perspective allowed for a deeper analysis of how social organization, cooperation, and collective management contribute to strengthening local economic

development (Sosa Chicaiza *et al.*, 2025). Additionally, secondary sources were analyzed, including scientific articles, specialized books, and reports from public agencies, etc., in order to verify, enrich, and contextualize the findings obtained through the survey.

In terms of design, the study was non-experimental and cross-sectional, as no variables were manipulated and data were collected at a single point in time. The survey analysis was supplemented with secondary data from relevant academic literature. This methodological combination provided a solid foundation for developing the proposed econometric model (Muñoz Marcillo *et al.*, 2024; Oviedo Carpio *et al.*, 2024).

### Population estimation and sample calculation

The 7 de Octubre parish was selected as the reference population, as it is one of the most representative parishes in the Quevedo canton due to its high population density and socioeconomic diversity. According to data from the National Institute of Statistics and Censuses (INEC, 2023), this parish has a population of approximately 62,411 inhabitants, distributed across 14,217 households.

To determine the required sample size, the formula for finite populations was used:

$$n = \frac{N \cdot Z^2 \cdot p \cdot q}{e^2(N - 1) + Z^2 \cdot p \cdot q}$$

Donde:

- N=14.217 (total number of households)
- Z=1.96 (95% confidence level)
- p=0.5 (maximum variability)
- e=0.05 (margin of error)

Substituting the values into the formula:

$$n = \frac{14217 \cdot (1.96)^2 \cdot 0.5 \cdot 0.5}{[(0.05)^2(14217 - 1)] + (1.96)^2 \cdot 0.5 \cdot 0.5}$$

$$n = 374.078$$

Therefore, a representative sample of 374 households in the Quevedo canton was selected.

However, taking into account the operational, logistical, and financial constraints of the study, along with the findings of previous studies conducted in the Quevedo canton, it was decided to reduce the sample size to 100 households. This methodological change increased the margin of error to approximately 7.95%, although a 95% confidence level was maintained, which is considered valid for exploratory and descriptive research in local contexts (Bravo Coello et al., 2024).

### Techniques and instruments for data collection and data analysis

To collect primary data, a structured survey was used, administered to a representative sample of residents of the city of Quevedo, with a focus on urban and rural areas with varying levels of community participation. The instrument used was a questionnaire with closed-ended questions and Likert-type scales, designed to capture information related to citizens' perceptions of their participation in community initiatives, their level of social organization, and their assessment of economic changes in their environment (Veloz Herrera *et al.*, 2025). This questionnaire was validated through expert review and a pilot test to ensure its clarity and relevance.

The data collected were processed using statistical software (STATA), which enabled descriptive analyses (frequencies, means, standard deviations) and inferential analyses, particularly multiple linear regression. To strengthen the quantitative analysis, secondary sources were consulted: academic articles, specialized books, technical reports, and official indicators, with the aim of contextualizing the results and comparing the empirical findings with the theoretical framework and existing evidence (Matamoros *et al.*, 2024). This combination of techniques provided a comprehensive and reliable overview of the relationship between community participation and economic changes in the city of Quevedo.

### Econometric methodology

In order to explain the economic changes experienced by households in Quevedo from a community perspective, a multiple linear regression model is proposed that integrates observable quantitative variables with qualitative

variables (dichotomous and polytomous) coded as dummy variables (Gujarati & Porter, 2010). This approach allows us to measure the combined effect of economic, educational, social, and demographic factors on average monthly household income.

### Econometric model

The analysis began with the theoretical model of the endogenous production function, based on the Cobb-Douglas form, which incorporates traditional economic variables (capital and labor) and non-conventional factors such as human capital and social capital (Stock & Watson, 2012). The theoretical equation used was the following:

$$Y = A \cdot K^{\alpha} \cdot L^{\beta} \cdot H^{\gamma} \cdot S^{\delta}$$

Where:

- Y: Local production or average income
- K: Physical capital (infrastructure, public/private investment)
- L: Workforce
- H: Human capital (population's educational level)
- S: Social capital (community participation index)
- A: Technological or institutional efficiency
- $\alpha, \beta, \gamma, \delta$ : Elasticities of each factor

Based on the above function, a multiple linear regression model was estimated in logarithmic form to facilitate the interpretation of the coefficients as elasticities:

$$Y(\text{Income})_i = \beta_0 + \beta_1 (\text{Participation})_i + \beta_2 (\text{Area})_i + \beta_3 (\text{Education})_i + \beta_4 (\text{Employment})_i + \beta_5 (\text{Services})_i + \varepsilon_i$$

This model made it possible to identify the specific impact of community participation (social capital) within the process of economic transformation that the city of Quevedo has undergone.

## Operational matrix of variables

**Table 1.**

*Operationalization of variables*

| Name of the Variable                              | Concept                                                                       | Dimension                        | Indicators                                              | Type / Measurement scale              | Unit / Categories                                                   |
|---------------------------------------------------|-------------------------------------------------------------------------------|----------------------------------|---------------------------------------------------------|---------------------------------------|---------------------------------------------------------------------|
| Monthly household income (Y)                      | Total, monthly household income.                                              | Economical                       | Total, household income                                 | Quantitative (ratio)                  | US dollars                                                          |
| Community participation (Participation)           | People's involvement in community activities for the common good.             | Social capital                   | Participation in community activities                   | Dichotomous qualitative               | 0= does not participate, 1=participates                             |
| Area of residence (Area)                          | Whether the household is located in an urban or rural area.                   | Contextual                       | Place of residence                                      | Dichotomous qualitative               | 0 = Rural, 1 = Urban                                                |
| Head of household's educational level (Education) | Highest level of formal education completed by the head of household.         | Human capital                    | Highest level of education attained                     | Qualitative multi-item scale (1 to 5) | 1 = Elementary, 2 = Secondary, 3 = Vocational, 4 = College 5 = None |
| People employed in the household (Employment)     | Number of people in the household who are employed and earn an income.        | Labor capital                    | Number of people with household income                  | Quantitative (discrete)               | Absolute number                                                     |
| Access to basic services (Services)               | Availability of essential services such as water and electricity in the home. | Infrastructure / Quality of life | Perceived access to services (water, electricity, etc.) | Dichotomous qualitative               | 0=No, 1=Yes                                                         |

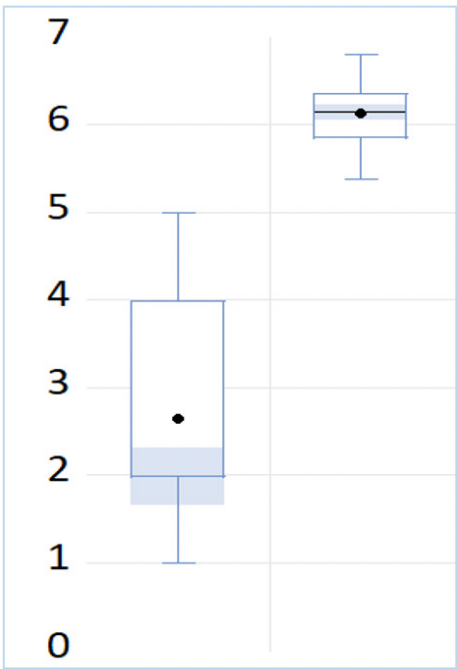
The model was fed with data processed from the survey administered to the population of Quevedo and supplemented with secondary information. To ensure the validity and reliability of the econometric model, statistical tests were applied, such as the variance inflation factor (VIF) to detect multicollinearity, the Breusch-Pagan test for heteroscedasticity, and the Jarque-Bera test for the normality of the residuals (Gujarati & Porter, 2010). The overall significance of the model was assessed using the F-statistic, while the individual significance of the coefficients was analyzed using Student's t-statistic (Stock & Watson, 2012). These tests confirmed the robustness of the model and the statistical significance of the results, allowing for reliable conclusions to be drawn about the link between community participation and economic changes in the city of Quevedo (Sosa Chicaiza *et al.*, 2025).

## RESULTS AND DISCUSSION

This section presents the findings derived from the analysis of data collected through a survey administered to the population of the Quevedo canton. The results are organized into two parts: a descriptive analysis of the sample and the study variables, and an inferential analysis based on the estimated multiple linear regression model.

An analysis of the data collected from 100 households in the Quevedo canton reveals significant patterns regarding socioeconomic structure, determinants of household income, and community dynamics. The sample consists of a predominantly young and urban population (72% urban, 28% rural), with a balanced gender distribution. Most households consist of 4 to 6 people with modest incomes: 47.1% report monthly incomes of less than \$400, and only 22.4% earn more than \$600.

**Figure 1.**  
*Boxplot comparing educational level and income*



**Source:** Stata 16 statistical software

The educational attainment of heads of household varies, with secondary education being the most common (36.5%), although 25.9% have a college education. However, this level of education does not always translate into higher wages, highlighting a mismatch between educational offerings and the labor market. Regarding basic services, only 28.2% rate access as excellent, while 31.8% disapprove, reflecting infrastructure deficits. Despite this, 69.4% of respondents view community participation as important for local development.

### Implications and guidelines for local development

The study reveals that Quevedo's economy relies primarily on households' ability to diversify their sources of income, especially in contexts where formal employment is limited. This dynamic confirms the importance of labor capital as a driver of development, in line with the theory of endogenous growth (Malizia *et al.*, 2020; Ponzetto & Troiano, 2025). Likewise, the marked urban-rural gap underscores the urgency of territorial equity policies that reduce disparities in access to opportunities and services (Asher & Novosad, 2020; Muñoz Marcillo *et al.*, 2024).

The limited impact of education on income suggests that the accumulation of human capital alone does not guarantee social mobility, which calls for educational reforms that address the needs of the local productive sector (Gallardo Toapanta *et al.*, 2022; Ordóñez Gavilanes *et al.*, 2022). For its part, community participation, although it has no direct impact on income, constitutes a valuable social asset for resilience and participatory governance, with the potential to catalyze endogenous development processes if it is aligned with inclusive policies (Herrero Olarte *et al.*, 2025; Tanrikul, 2023).

Several public policy recommendations emerge from this analysis:

- Job creation and entrepreneurship that promote the diversification of income sources.
- Investment in rural infrastructure and basic services, reducing regional disparities.
- Educational reforms linked to the labor market, improving the relevance of education.
- Strengthening social capital through community participation strategies that foster sustainable and shared development.

**Table 2.**  
*Summary of Specific Objectives and their Relationship to the Results Achieved*

| Specific Objective                                                                                  | Related findings and conclusions                                                                                                                                                                                                                                             | Sources                                                                    |
|-----------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|
| 1. To describe the level of citizen participation in the economic processes of the city of Quevedo. | 69.4% of respondents consider community participation to be important for local development. However, the econometric analysis showed that its direct impact on household income was not statistically significant. Its benefits are more indirect and long-term.            | (Herrero Olarte <i>et al.</i> , 2025; Tanrikul, 2023)                      |
| 2. To analyze the influence of citizens' educational level on economic changes in the city.         | The educational level of the head of household had a positive but modest effect on income (2.1% for each additional level of education attained). There is a mismatch between educational training and the demands of the local labor market.                                | (Gallardo Toapanta <i>et al.</i> , 2022; Pico-Saltos <i>et al.</i> , 2021) |
| 3. To evaluate the impact of public policies.                                                       | Although specific policies were not evaluated, it is concluded that current policies are insufficient. Policies are recommended in the areas of job creation, investment in rural infrastructure, labor market-linked educational reforms, and strengthening social capital. | ardo Toapanta <i>et al.</i> , 2022)                                        |

Overall, the results and their interpretation highlight that the determinants of household income in Quevedo stem from a combination of structural and social factors. This underscores the need for multidimensional strategies that integrate employment, services, education, and community cohesion as pillars of local economic development (Peris & Bosch, 2020; Sosa Chicaiza *et al.*, 2025).

### Multiple Linear Regression Analysis

The following econometric model was estimated to assess the impact of community participation and other variables on monthly household income. The regression results are presented in Table 3.

**Table 3.**  
Multiple Linear Regression Analysis

| Dependent variable: Monthly household income (Income) |                                          |
|-------------------------------------------------------|------------------------------------------|
| Participation                                         | 0.0690505<br>(0.072016)                  |
| Area                                                  | 0.1827593***                             |
| Education                                             | (0.0651213)<br>0.0210845*<br>(0.0255735) |
| Employment                                            | 0.1714087***<br>(0.0316984)              |
| Services                                              | 0.12503*<br>(0.0737759)                  |
| Constant                                              | 5.561998***<br>(0.1011061)               |
| Observations                                          | 100                                      |
| Adjusted R-squared                                    | 0.3397                                   |
| Overall significance                                  | 0.0000                                   |

**Note.** Standard errors are shown in parentheses; \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

The results of the multiple linear regression model (Table 3) reveal that, when estimating monthly household income on a logarithmic scale and holding all other variables constant, the most significant factor is the number of employed persons (Employment). The area of residence (Area) also shows a significant effect. Educational level (Education) and access to basic services (Services) have positive but modest effects, suggesting that their impact, although favorable, is limited compared to structural variables such as employment. Community participation (Participation), although positive, does not reach conventional statistical significance ( $p > 0.1$ ), implying that its direct influence on income is not robust in this model. Overall, the model explains 33.97% of the variability in income (adjusted  $R^2 = 0.3397$ ) and is globally significant ( $p = 0.0000$ ), confirming the relevance of the included variables for understanding the economic dynamics in Quevedo.

### Community participation

Although community participation has a positive coefficient, it did not reach statistical significance ( $p = 0.340$ ), suggesting that its direct impact on household income is not robust in this model. This does not necessarily rule out its relevance, but rather indicates that its economic benefits may be indirect, mediated by mechanisms such as the strengthening of support networks, access to information, or improved social cohesion, which are not fully captured by a dichotomous variable. Future research should explore these qualitative dimensions to better understand the role of social capital in economic development. Tanrikul (2023) argues that community participation generates multidimensional impacts that go beyond immediate economic metrics. In the case of Quevedo, the community's positive assessment of participation (69.4% of respondents) reinforces the idea that social capital acts as an institutional lubricant for longer-term development processes (Aranda, 2019; Herrero Olarte *et al.*, 2025).

### Area of residence

The area of residence emerges as a significant factor (coeff. = 0.183,  $p < 0.05$ ), with households in urban areas reporting, on average, 18.3% higher income than those in rural areas. This gap reflects the territorial economic disparities characteristic of developing regions, where access to more dynamic labor markets, better formal employment opportunities, and higher levels of connectivity in urban areas translate into tangible economic advantages. This finding is consistent with the literature on regional development, which identifies the concentration of economic capital and infrastructure in urban centers as a driver of spatial inequality (Muñoz Marcillo *et al.*, 2024).

As Gómez-Villanueva *et al.* (2021) point out, urban space is a battleground for resources and opportunities, which widens the center-periphery gap even within the same canton. In Quevedo, this disparity confirms that the lack of connectivity and access to rural markets limits social and economic mobility, reinforcing the need for more inclusive territorial development policies (Asher & Novosad, 2020; Fuentes & De León, 2024)

### **Educational level of the head of household**

The educational level showed a positive effect (coef. = 0.021,  $p < 0.1$ ), although modest, where each higher level of education attained by the head of household was associated with a 2.1% increase in household income. Although the effect is statistically significant, its relatively low magnitude suggests the existence of gaps between educational attainment and its effective translation into higher wages or economic opportunities in the local labor market (Piguave Rendon *et al.*, 2024; Vera *et al.*, 2020). This could indicate mismatches between educational supply and the demands of Quevedo's productive sector, or the predominance of low-wage jobs that do not fully value human capital (Pico-Saltos *et al.*, 2021). Ordóñez Gavilanes *et al.* (2022) noted that, in segmented labor markets, human capital alone does not guarantee significant wage increases. This finding calls into question the effectiveness of education as a mechanism for social mobility in Quevedo, where informal and low-wage employment predominates, consistent with the observation by Gallardo Toapanta *et al.* (2022) regarding the limited capacity of local governments to align education with productive development (Limonés Sánchez *et al.*, 2025; Molina Hernández, 2022).

### **People engaged in household work**

The analysis reveals that the number of employed individuals in the household is the most robust and significant determinant of household income (0.171;  $p < 0.01$ ). For each additional income-earning person, there is an approximate 17.1% increase in monthly household income, holding all other variables constant. This result highlights the importance of diversifying income sources and the local economy's capacity to absorb labor. In the context of Quevedo, this reflects an economic structure where reliance on multiple income earners is a key strategy for household financial sustainability, consistent with previous studies highlighting economic pluralism as a mechanism of resilience in intermediate cities (Muñoz Mero *et al.*, 2024; Verdezoto Moreta, 2023).

According to endogenous growth theory, human and labor capital are key drivers of development (Ponzetto & Troiano, 2025). Furthermore, studies such as those by Malizia *et al.* (2020) argue that, in agro-industrial economies, household multiple employment serves as an adaptive mechanism that ensures financial sustainability. In the local

context, this dynamic aligns with Pérez-Cornejo *et al.* (2023), who highlight that economic pluralism in intermediate cities enhances resilience in the face of structural crises.

### **Access to basic services**

Access to basic services showed a significant positive association (coeff. = 0.125,  $p < 0.1$ ) with household income. This implies that, while improved service provision could create enabling conditions for economic development, its direct effect on household income is moderate in the short term. Its impact probably operates through complex channels, such as improved labor productivity, better health, or reduced opportunity costs, all of which take longer to translate into monetary income. Franco Cedeño *et al.* (2022) found that infrastructure deficiencies limit productivity and increase economic insecurity, especially among informal households. In this regard, improving service coverage in Quevedo could enhance local economic development and reduce inequalities, reinforcing the view of Oviedo-Bayas *et al.* (2020) on the need for participatory territorial planning that prioritizes infrastructure (Sosa Chicaiza *et al.*, 2025; Veloz Herrera *et al.*, 2025).

### **Contribution to knowledge**

This research provides original empirical evidence by demonstrating that, in the context of Quevedo, Ecuador, structural factors such as employment and geographic location play a greater role than community participation in determining short-term household income. By revealing the lack of a direct impact of social capital and the modest return on educational attainment, the study challenges traditional theoretical views and provides a theoretical basis for designing public policies that prioritize the reduction of urban-rural gaps and the alignment of educational offerings with local labor demand.

### **Limitations of the study**

The study has several important limitations that should be taken into account when interpreting its results. First, because it is a cross-sectional study, it does not allow for the analysis of changes or trends over time. Furthermore, reliance on self-reported data could introduce bias, particularly regarding sensitive topics such as income or social participation. Although a representative parish was selected, the geographic coverage does not allow for generalizing the findings to the entire canton without methodological

precautions. Additionally, logistical constraints, especially in rural areas, made access to certain areas difficult, which may have affected the representativeness of the sample.

## CONCLUSIONS

Employment and geographic location are the most significant factors influencing household income. The study found that the number of employed individuals in the household and living in an urban area (as opposed to a rural one) are the variables with the most positive and statistically significant impact on income. This highlights the critical importance of policies aimed at creating jobs and narrowing the development gap between urban and rural areas in Quevedo.

The direct impact of community participation on income is not statistically significant in the short term. Although the community views participation positively and its influence was hypothesized, the econometric model did not find a robust and direct relationship between participating in community activities and higher household income. This suggests that the economic benefits of social capital may be indirect, operating through mechanisms such as the strengthening of networks, access to information, or greater social cohesion, which take longer to translate into monetary income.

There is a mismatch between educational capital and its economic return. The educational level of the head of household had a positive but modest effect on income. This indicates that, in the context of Quevedo, education alone does not translate into substantially higher wages, possibly due to a mismatch between the training offered and the demands of the local labor market, or to the prevalence of low-paying jobs that do not fully value human capital.

### Statement on the Use of Artificial Intelligence

Artificial intelligence tools were used solely as technical support for checking the grammar, spelling, and academic style of the manuscript, as well as for translating the title, abstract, and keywords.

### Authors' contribution:

**José Luis Rivera Velasco:** Conceptualization, formal analysis, research, methodology, software, supervision, visualization, writing—first draft, writing—revision and editing.

**Kimberlyn Adela Briones Alcívar:** Formal analysis, research, methodology, software, validation, writing – first draft, writing – revision and editing.

**Fernando Fabricio Fernández Fernández:** Research, methodology, validation, visualization, writing – first draft, writing – revision and editing.

**Diego Alejandro Tene Buñay:** Visualization, writing—first draft, writing—revision and editing.

### Statement of Conflict of Interest

The authors declare no conflicts of interest related to the publication of this manuscript.

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