

ASSESSING THE IMPACT OF RAIL-BASED TRANSIT ON URBAN LAND VALUE: A CASE STUDY OF THE BOGOTÁ METRO

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Keywords: Metro System, Land Use, Infrastructure, Urban Development, Coarsened Exact Matching (CEM)

Summary: Assessing the Impact of Rail-Based Transit on Urban Land Value: A Case Study of the Bogotá Metro. The metro is a project of high significance for Bogotá, a city that has waited nearly 50 years for a structural solution to its mobility challenges. Its construction not only addresses a historical need but also marks a turning point in how citizens move and how urban development unfolds. More than just an infrastructure project, the metro represents a milestone in Bogotá's transportation system, with the potential to significantly transform its urban dynamics. Until now, the city has relied on a bus rapid transit (BRT) system, which, despite its efficiency, is insufficient to meet the growing passenger demand.

The implementation of a mass transit system such as the metro introduces new dynamics to the city, creating opportunities for residents, driving local economic growth, and improving quality of life. One of the most significant impacts is the metro's influence on urban land values, as it enhances accessibility and alters property demand. This study aims to analyze this impact by considering urban design, socioeconomic, and infrastructure variables, along with environmental and locational factors such as walkability, bikeability, proximity to green spaces, socioeconomic strata, building age, number of floors, and proximity to public transportation, among others. The objective is to isolate the metro's effect from other external factors influencing land value appreciation.

Currently, the Bogotá metro project is at different stages: Line 1 is under construction, while Line 2 is in the process of selecting the company responsible for its construction. These project phases will be taken into account in the analysis.

The study methodology will be based on cadastral and geospatial data, identifying city blocks located within an 800-meter radius of the stations along Lines 1 and 2. The Coarsened Exact Matching (CEM) method will be used to compare treated and control areas, and regression models will be applied to quantify the metro's impact on land value appreciation.

The expected results will provide a deeper understanding of the relationship between the metro and land value, facilitating the formulation of urban planning policies and land value capture strategies. These findings will be instrumental in designing financing schemes that leverage land appreciation to promote investments in infrastructure and urban amenities within benefiting areas. Additionally, recommendations regarding densification and urban development around metro stations will be formulated to ensure more orderly and sustainable city growth.

This research will contribute to better decision-making in urban development, benefiting authorities, investors, and residents by providing key insights for more efficient and equitable territorial planning.