

Gender Differences in Bicycle Use in Latin American Cities

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Cycling is a transport mode that provides environmental, health, and social benefits. In Latin America, the most urbanized and highly inequitable region in the world, it is essential to identify the challenges and priorities to reduce the gender gap in bicycle use. Given the substantial impact that transportation systems could generate on environmental sustainability and people's ability to access opportunities, many cities in Latin America must develop transportation programs promoting sustainable travel modes, considering gender differences. Much of the available literature has indicated that gender considerations should be included in bicycle infrastructure planning due to the significant difference in travel behavior among men and women.

Previous studies have demonstrated that there are certain travel patterns that are specific to women. Women travel shorter distances and cover a more limited geographical area (Jiménez-Mejías et al., 2014; Lecompte & Bocarejo, 2017), engage in more nonwork travel, particularly in household-sustaining activities and serve-passenger trips (Jaimurzina et al., 2017; Montoya-Robledo et al., 2020; Vance & Iovanna, 2007). Women are more likely to trip chain and have more complex activity patterns (Galiani & Jaitman, 2016; Scheiner & Holz-Rau, 2017), travel more during off-peak hours (Fernández et al., 1999), tend to bike less, have less access to the car, and tend to walk more or use more transit than men (Casas et al., 2019; Echiburú et al., 2021; Granada et al., 2016; Gutiérrez et al., 2020; Higuera-Mendieta et al., 2021; Vance & Iovanna, 2007).

These patterns explain that women disproportionately carry the burden of home responsibilities. Specifically, child care is the most critical factor in decreasing the rate of bicycle use in women (Montoya-

Robledo et al., 2020). Furthermore, women are less likely to bike when perceived security and traffic safety is low because women are more risk-averse than men (Gutiérrez et al., 2020; Montoya-Robledo et al., 2020) sometimes even with the presence of segregated bike lanes (Echiburú et al., 2021). Historically, bicycle infrastructure planning has overlooked gender differences. Today, how transportation policies can be structured considering gender differences in bicycle use is becoming increasingly important. In Latin America, bicycle use is rapidly increasing in some pioneering cities such as Bogota and Santiago, following major bicycle infrastructure investments. Yet, despite the increase of separated bike lanes, women continue to be a relatively minor portion of total bicycle users. Our research question is as follows: Will change to bicycle infrastructure contribute to decrease the gender gap around bicycle use in Latin American Cities? In Latin America, such studies are scarce and limited to certain cities.

In this study we examine associations between gender, level of traffic stress, and bicycle use in multiple metropolitan areas in Latin America: Asuncion, Bogota, Buenos Aires, Mexico City, Santiago, and Sao Paulo. We collected transport survey data in Asuncion, and for the rest of the metropolitan areas, we used secondary data provided by local transport entities. The analysis of these survey data will be separately conducted for each city to identify particular trends unique to some cities and common trends across cities. Firstly, descriptive statistics will be performed on bicycle use and all study variables. Secondly, logit regression analysis will be conducted for men and women for work and nonwork trips. The dependent variable is mode choice (bicycle=1, all other modes=0) and the independent variables are sociodemographic characteristics and physical environment factors. The sociodemographic variables include age, occupation, income, education, household size, and the number of children, among others. The physical environment variables include different types of accessibility measures, population density, average slope, connectivity, the proportion of low LTS roads, the total length of bike lanes and roads, measured in the proximity of home location. The findings of this study should make an important contribution to the field of transportation planning and policymaking. Our research interest is to examine whether the previous literature aligns with a larger scale of the Latin American region to explore its generalizability. Specifically, our aim is to identify challenges and priorities to increase bicycle use among women in this region.

Palabras clave: bicycle, travel behavior, accessibility, physical environment

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