



## Editorial

## Transportation and land development: A global view



The production of this issue of *Research in Transportation Economics* was a partnership with the Transportation Research Board (TRB) of the National Academies' Standing Committee on Transportation and Land Development (ADD30). The articles are global in scope and include studies from Canada, China, Peru, Thailand and the United States.

This Special Issue focuses on several themes, including: how walking and bicycling interact with land use in North and South America, the role of transportation costs in reducing sprawl, the role of the built environment and accessibility on travel behavior in North America and the role of bus rapid transit (BRT) in Asian Cities. The following paragraphs provide a brief summary of each paper followed by a summary of how the findings collectively advance literature in the area of transportation and land development.

The integration of motorized and non-motorized transportation is integral in creating sustainable cities, especially in the Global South. Adriana Ortegon and Daniel Oviedo Hernandez examine Lima, Peru, in "Assessment of the potential for modal shift to non-motorised transport in a developing context: case of Lima, Peru." This paper identifies areas in cities that have the characteristics to promote the physical integration of walking and bicycling with public transportation. The authors find that project-specific planning approaches for bicycling infrastructure has resulted in fragmented networks. An integrated assessment approach gives priority to complete connectivity which yields system wide benefits. The methodology developed for Lima is replicable in other cities as it utilizes secondary data such as infrastructure inventories and travel surveys.

The second paper by Elizabeth Flanagan, Ugo Lachapelle and Ahmed El-Geneidy, "Riding tandem: does cycling infrastructure investment mirror gentrification and privilege in Portland, OR and Chicago, IL?" examines the geography of bicycle infrastructure. The authors developed a cycling infrastructure index based on longitudinal investments in bicycle facilities, bicycle parking, and bike share stations in the Chicago case. This data was used to compare indicators of gentrification at the census tract level. In Portland, the findings show that greater cycling infrastructure investment is associated with current socioeconomics tied to marginalization and incoming residents of higher education and wealth, especially located closer to the downtown and dense neighborhoods. The findings in Chicago were similar, although race was uniquely significant in Chicago. Census tracts with a higher percentage of White populations were more likely to receive bicycling infrastructure investment. Communities with greater than 40 percent non-White population concentrations were especially associated with a lack

of bicycle infrastructure investment. However, the paper also finds that neighborhoods with bicycle facilities are becoming more diverse, over time. Implications of this paper suggest a pattern that marginalized communities are less likely to secure bicycling infrastructure. Planners and policymakers need to include stakeholders from such neighborhoods and direct investments equitably to all communities, especially those with lower-incomes and minority populations.

The third paper in this issue, by Mischa Young, Georges A. Tanguay and Ugo Lachapelle, is "Transportation costs and urban sprawl in Canadian metropolitan areas." The paper shows that high parking and gasoline prices are associated with urban containment, or in other words, they are associated with minimizing the extent of sprawl. Higher gasoline prices and off-street parking costs are associated with higher housing densities and shorter commute distances. They note that gasoline prices had a greater effect on urban sprawl than parking prices. The authors infer that parking prices would be more effective in reducing sprawl if employers adopted a parking cash-out policy. Moreover, they suggest that given the limited number of tools available to contain sprawl, policymakers should utilize transportation costs when other travel reduction objectives are also desired.

John Renne, Reid Ewing and Shima Hamidi wrote the fourth paper, "Transit commuting, the network accessibility effect, and the built environment in station areas across the United States". This paper examines the mode share for transit commuting across all fixed-route transit station areas in the United States. A multiple-level model accounts for variables at the regional and neighborhood scales. At the neighborhood level, income, population and jobs intensity, race, transit type, jobs-population balance, walkability and transit service frequency were all significant variables associated with transit commuting. The strongest predictor was regional network accessibility, measured by the share of people and jobs within a half-mile of all fixed-route transit stations as a share of all people and jobs in a region. This study supports policies that promote transit-oriented development (TOD) at both the neighborhood and regional scales.

Much of the literature on BRT has ignored barriers to successful implementation. In 2010, Bangkok, Thailand opened their first BRT corridor and then canceled the remaining five lines due to the perceived failure. The fifth paper in this issue, "Obstacles to the creation of successful bus rapid transit systems: the case of Bangkok" by Irene Wu and Dorina Pojani makes the case that cities can learn just as much from failure as from success. They deployed a mixed-methods study, including interviews with key officials that

provides a basis for identifying and overcoming barriers to BRT planning and implementation. They built upon a theoretical framework that focuses on several factors that examine how to overcome barriers for successful implementation. Factors include institutional and legislative framework, political leadership and commitment, management of competing modes, public participation, adequate funding and coordination, quality physical design, and image promotion. This approach has benefits for any fixed-route transit project, BRT or rail, and could help ensure that barriers are overcome and success, achieved.

The last paper in this issue, “Measuring the impacts of bus rapid transit on residential property values: the Beijing case” was written by Taotao Deng, Mulan Ma, and John Nelson. This paper used a hedonic price model to measure the impact of BRT on residential property values. While many hedonic pricing studies have examined rail systems, this is one of the first to examine BRT, especially in China. Because data on transactions is difficult to obtain in China, the study examined asking prices for homes and found that prices increased by 1.32–1.39 percent for each 100-meters closer to the BRT station. Given that the corridor under study in Beijing provided significant travel time benefits to the nearby residents, the authors suggest that this finding supports earlier studies, which argue that property value uplift is a factor of comparative travel time saving of taking transit rather than due to the type of transit technology, such as BRT versus rail. The authors indicate that due to the small sample

size, location of study, and data based on asking prices versus transactional sales, this study is not definitive but can be considered a step in building more research on the topic of property value uplift near BRT stations.

In summary, the six papers presented in this special issue on transportation and land development provide advances in building more evidence from across the globe that transit systems interact with land development to create transit-oriented and walkable communities that result in less sprawl and higher property values, even to the extent of gentrification. Planners and officials are critical to ensuring that fixed-route transit projects, including rail and BRT, significantly improve accessibility to compete with automobiles. Officials need to be aware of implementation obstacles and the public sector must ensure the equitable distribution of infrastructure to all neighborhoods, especially the most marginalized, for all to share in the benefits of creating walkable and bicycle-friendly TODs and neighborhoods.

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