

# Infrastructure investments, public transport use and sustainability:

## Evidence from Lahore, Pakistan

### Policy Brief

DRAFT: Comments welcome

Hadia Majid\*

Ammar Malik<sup>†</sup>

Kate Vyborny<sup>‡§</sup>

November 7, 2019

## 1 Background

- In many cities in the developing world, public transport infrastructure has not kept up with dramatic urban growth.
- Car ownership is growing rapidly among higher-income families, worsening traffic congestion, increasing carbon emissions, and potentially fostering land-use patterns that hamper mobility of the poor.
- To address these challenges, over two hundred cities across Asia, Africa and Latin America have either built, or are planning mass transit systems.
- In Lahore, Pakistan, the government built the first mass transit line as a Bus Rapid Transit (BRT) in 2013.

---

\*Department of Economics, Lahore University of Management Sciences, Lahore, Pakistan.

<sup>†</sup>Evidence for Policy Design, Cambridge, Massachusetts.

<sup>‡</sup>Department of Economics, Duke University, Durham, NC. Corresponding author: katherine.vyborny@duke.edu; 213 Social Sciences Building, Duke University, Durham NC 27708.

<sup>§</sup>We thank the International Growth Centre, the International Food Policy Research Institute Pakistan Strategy Support Program, the Asian Development Bank and the International Initiative for Impact Evaluation (3IE) for funding support that made this project possible.

## 2 Methodology

- This study (Majid et al. 2019) estimates the effect of mass transit on commuting in Lahore, Pakistan.
- Many previous studies rely on comparisons with areas that are far from transit, which might have different trends for reasons other than transit.
- This study compares areas connected by the new mass transit line to areas which were slated for transit routes that have not yet been built as a comparison group, and had similar income, demographics and commute patterns before it was built (Figure 1).

## 3 Key findings

- The study finds that access to the new transit line reduced both the time and cost of commuting substantially (Figure 2).
- Surveys of mass transit riders show that many of them switched from private modes to public transport (Figure 3). The regression estimates on the matched sample show this is a causal relationship: commuters switched to using public transport because of the mass transit line, resulting in an estimated 30% increase in public transport use in nearby areas and an estimated 35,000 commuters who switched from private modes, particularly motorbikes.
- The mass transit line attracts a larger proportion of highly educated riders than those who rode public transport before its introduction, suggesting that its high quality and reliability make public transport options acceptable to a broader part of the population (Figure 4).
- Even though the capital cost of the transit line was substantial, and its fare is subsidized, most riders state they are willing to pay a substantially higher fare that could make the service financially more sustainable (Figure 5).

Figure 1: Mass transit and comparison areas

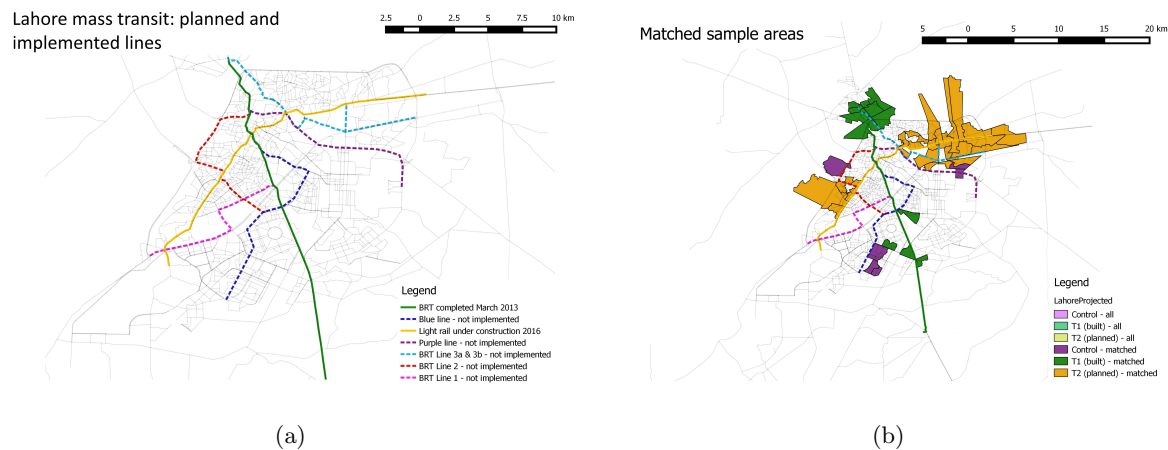


Figure 2

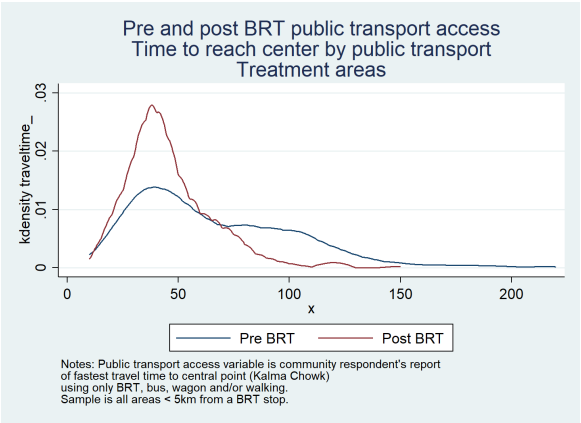


Figure 3

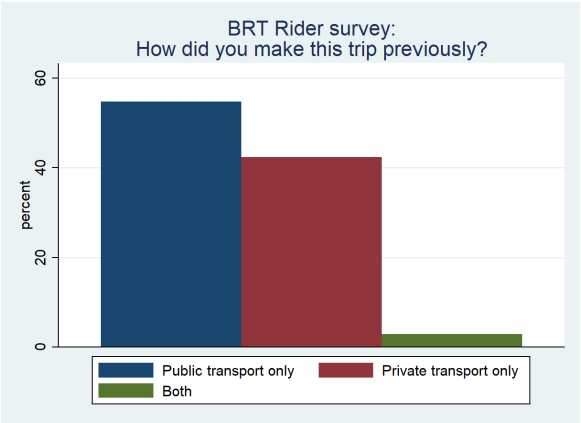


Figure 4

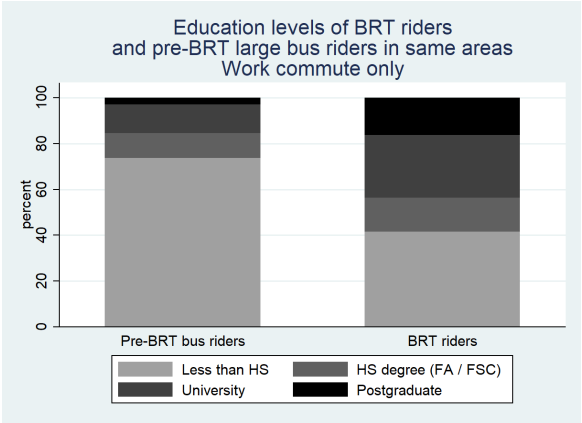


Figure 5: Rider self-reported willingness to pay higher fares for mass transit

