Gendered travel pattern in Dhaka: Preliminary results from "Economics and welfare impact of DMR transit"

Prottoy Akbar, Tomoki Fujii, Arpita Khanna and Abu S. Shonchoy

- This policy brief presents preliminary results from a research project entitled "Economics and welfare impact of Dhaka Mass Rapid Transit system (Metro Rail)."
- Preliminary results show significant differences in the travel patterns of women and men.
- Building a safe mode of transport is critical for addressing the gendered travel pattern driven by safety concerns.
- DMR can play a critical role in building a safe transport system and addressing the gendered travel pattern in Dhaka.

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Policy motivation

With the rapid increase in population and motorisation, Dhaka has become one of the most congested cities in the world. Building safe, reliable, and affordable public transportation is a key to addressing this issue. Therefore, the Dhaka Metro Rail (DMR), whose first line, the MRT Line-6, opened in December 2022, has the potential to help alleviate the chronic congestion issue in Dhaka. Against this backdrop, this research project aims to perform a comprehensive evaluation of the short-run impacts of the MRT Line-6 in the Dhaka North City Corporation on various outcomes, including travel, labour market, household behaviour, and property market, among others. Because the project is still ongoing, this policy brief focuses on the gendered travel patterns and perceptions emerging from our baseline data and their policy implications.

Overview of the research

Dhaka Metro Rail (DMR) is the first inner-city rail transit service, and its first line, the MRT Line-6, initiated its operation in December 2022. The MRT Line-6 runs about Uttara North to Agargaon and will cover a 20-kilometre distance between Uttara North and Motijheel when its southern part opens. With more lines to be added in the future, the DMR is expected to ease endemic traffic congestion and poor mobility within Dhaka. With this development of large infrastructure in mind, our overall research question is, “What are the implications of Dhaka's upcoming mass rapid transit system for the distribution of socioeconomic activity and mobility within the city?”

Large-scale mass transit projects like the DMR affect travel conditions in the entire city, not just along their routes. They also have citywide impacts on housing markets, air pollution, gender equality, labour market informality, population decentralisation, and the city’s long-term growth, among others. However, a comprehensive assessment of a transportation infrastructure project is rarely undertaken by governments or donors despite its importance for sustainable development outcomes. Academic research has typically focused on a limited set of outcomes or taken place in settings with rich administrative data–precluding studies in cities like Dhaka.

Our goal is to evaluate the impacts of the DMR comprehensively. We conduct panel household and business surveys and combine them with web-scraped data (such as real-time travel times and online property listings) and field observation data such as building listings and direct ground-level pollution measurements. We plan to exploit recent advances in econometric and spatial modelling techniques for sparse data settings to estimate the general equilibrium impacts of Dhaka’s MRT Line-6 on residents’ welfare and quantify

how the welfare gains are distributed across space and different socioeconomic groups, and examine the channels through which these gains transpire (for example, faster travel, transit-oriented development, and job agglomeration economies). As the project is still ongoing, we will focus in this policy brief on the gendered travel pattern found from the baseline survey.

Key findings and policy implications

There are significant differences in the travel patterns of women and men.

From the baseline survey, we find a large gender difference in the trip patterns, including trip frequency and trip cost. In general, women are much less likely to make trips. Among the working-age respondents who are currently not in school (hereafter simply "respondents''), 73% of men go out of the house at least once every day. In contrast, only 28% of women go out at least once a day. Less than 10% of trips taken by male respondents were accompanied by a household member, but the corresponding figure for women is nearly 40%. The source of this gender difference calls for the attention of policymakers.

Building a safe mode of transport is critical for addressing the gendered travel pattern.

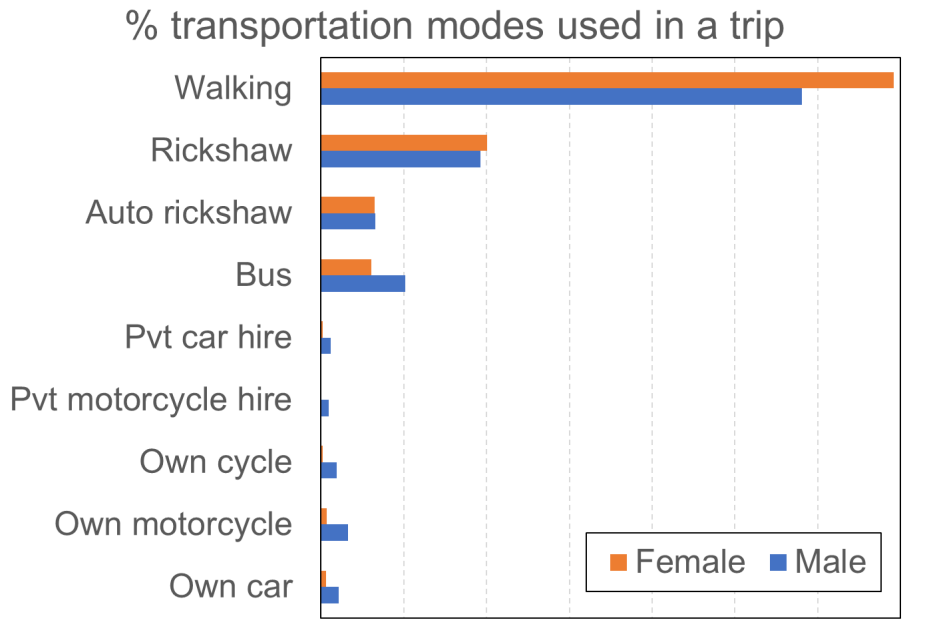
The baseline survey data show that 49% of working-age female respondents who are out of school feel concerned about being harassed during a trip. This difference is statistically significant. Women are 43% more likely to feel concerned about harassment while out in public. Further, the proportion of women who avoid travelling out of fear of being harassed is as high as 25%, which is also significantly higher than 17% for men. Hence, our data suggests that building a safe mode of transport is critical for addressing the gendered travel pattern.

DMR can play a critical role in building a safe transport system and addressing the gendered travel pattern in Dhaka.

The baseline survey data indicate that over 95% of respondents expect the MRT Line-6 to be a safer mode of transport. With measures such as the deployment of the MRT police and female-only cars in place, the new MRT line might offer a safer travel experience, particularly to female travellers. Going forward, it will be crucial for the DMR system to uphold high safety standards to live up to these expectations. At the same time, it might also be important to improve other modes of transport, such as buses, to address the gendered travel pattern, since the entire travel will remain unsafe so long as one's trip includes an unsafe mode of transport. It is important to pay close attention to

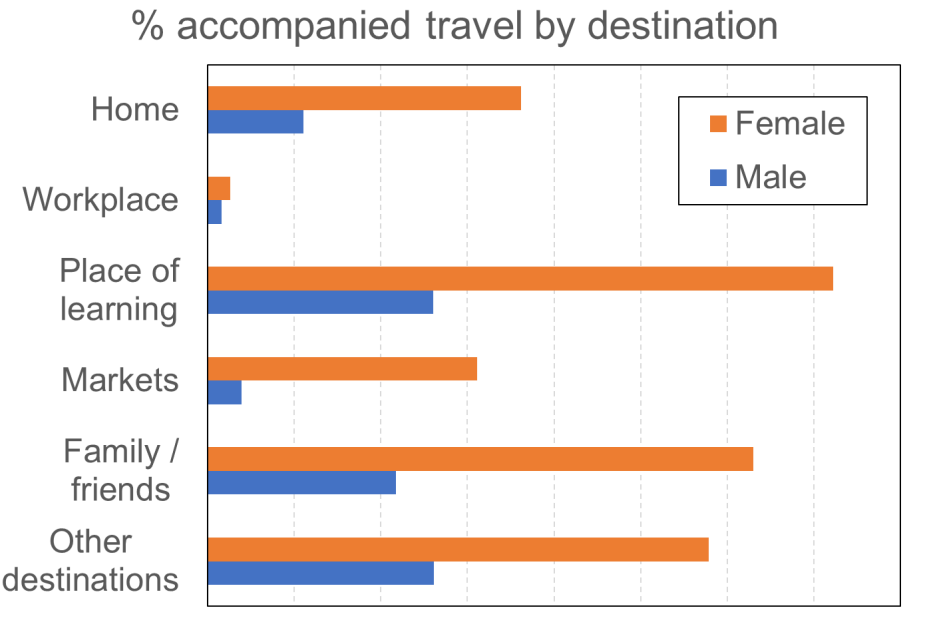
how the DMR is used in conjunction with other modes of transport. We plan to elucidate this point with the endline data.

FIGURE 1: Transportation modes used in a trip



(*n*=1,721; multiselect)

FIGURE 2: Accompanied travel by destination



(*n*=1,721)

FIGURE 3: Travel perceptions by gender