



## Driving economic empowerment: Harnessing public and private transportation for women in Pakistan

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- In Pakistan, restricted mobility poses a significant obstacle to women's economic empowerment. Despite experiencing a growth of approximately 9% in female labour force participation (FLFP) over the last three decades, the country's female workforce engagement is lower than regional averages. Furthermore, a labour force survey (2020-21) shows that women residing in urban areas exhibit lower labour force participation rates (10%) compared to their rural counterparts (28%).
- Considering the importance of the provision of public and private transportation services in facilitating female labour force participation, the study investigated factors that influence women's transportation choices and their subsequent impact on labour force participation using a mixed-method approach.
- The findings reveal that the introduction of the metro bus service in Lahore has helped women participate in the labour force. However, the launch of ride-hailing services did not have the same effect. Additionally, the findings show that when making decisions, women prioritise transportation options that are both easily accessible and ensure their safety.
- Regularly assessing the effectiveness of public and private transportation services, particularly in terms of their impact on female labour force participation and making necessary policy adjustments and interventions is crucial.

## Policy motivation for research

Pakistan ranks among the low-performing countries in terms of gender equality, falling into the bottom category according to Global Gender Gap Report (2022). In economic participation and opportunities, the country's ranking has declined from 112th in 2006 to 145th in 2022. Furthermore, women who live in urban areas are less likely to participate in the labour force than the women who live in rural areas (Amber & Chichaibelu, 2023b). In urban areas, one of the main obstacles that prevent women from participating in the labour force is their restricted physical mobility outside their homes (Field & Vyborny, 2016).

Societal restrictions, such as limitations on interactions with unrelated men, combined with concerns about harassment, social stigma, and discomfort create additional barriers that limits women's freedom to move around and use different transportation options (Sajjad et al., 2018). These mobility constraints have a negative impact on women's access to job opportunities and their ability to achieve economic independence, thus perpetuating gender disparities and restricting their involvement in economic activities.

When addressing women's mobility constraints, it is important to consider accessibility, affordability, and safety. Public transportation offers an affordable means for women to travel. However, according to a research study (Sajjad et al., 2017), women face numerous challenges related to safety, harassment, and concerns about their social reputation when using public transport. The safety issues can indeed differ across various modes of public transportation. For example, the integration of infrastructure and technology in mass transit system has introduced measures ensuring the safety of women (Martinez et al., 2018). In contrast, private transportation services offer better accessibility and safety, but they are not affordable compared to public transportation services. However, the private transportation services remain more expensive than public transportation and does not attract public transit users, particularly females (Singh, 2020).

### **Study context: Lahore metro and ride-hailing services**

Lahore was selected as study area to analyse the impact of provision of transportation services on female labour force participation for several reasons. The provision of transportation services in Lahore city has developed over the last decade through a series of public and private endeavoured. Lahore as the pioneering city that initiated the implementation of mass transit infrastructure in Pakistan offers a valuable opportunity to examine the impact on women's employment over an extended period of time. The dominant modes of public transportation in Lahore include Lahore metro bus, the orange line, and speedo

buses along with low-occupancy wagons and motorcycle rikshaws (informal or unregulated modes of transportation). While private transportation comprises of (excluding personal vehicles) ride-hailing (Uber, Careem, InDriver), taxis, and auto rikshaws. The Lahore metro bus system was constructed and inaugurated in 2013 at a cost of around 11 million dollars per kilometre. It is operated by Punjab Mass Transit Authority (PMTA) along with a system of feeder routes (speedo buses) that connect different spatial locations to the metro stations.

The system consists of 64 air-conditioned buses with 108 passengers' capacity each. It operates along a 27-kilometer route with 27 stations. The system includes designated seating and standing areas for women. However, the metro bus routes do not cover all areas of Lahore. To address this, Punjab Mass Transit Authority (PMTA) has introduced feeder routes that connect to various metro stations, ensuring accessibility to a wider area. Ride-hailing is a technology-based app service that connects riders and drivers in a marketplace. The service is widely established in Lahore and the major cities in Pakistan. There are multiple tech service providers in Lahore; however, considering the market share and time span of the study, we focused primarily on Uber and Careem. Careem started its operation in Lahore in 2015 a year earlier than Uber. Careem operates 24/7 and offer different categories of cars with different prices and comfort level for passengers to choose from. The Careem App includes different features ("Help" option, ridesharing, safety and security) that makes it different from other modes of transportations.

## Research questions

Considering the role of public and private transportation services in facilitating female labour force participation, this study seeks to answer the following questions:

- What would have been female labour force participation in Lahore if there were no provision of 'Lahore metro' bus service?
- What would have been female labour force participation in Lahore if there were no provision of 'ride-hailing' transportation service?
- What are the factors associated with the use of public and private transportation services that facilitate or hinder women from participating in the labour force?
- What are the perspectives of service providers on mobility constraints faced by women, and how are they addressing these constraints?

## Research design

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Transportation extends beyond being solely a physical resource, encompassing vehicles, roads, and public transport. It also encompasses the social and cultural factors that impact women's access to transportation and their capacity to utilise it effectively in connecting their home and work lives (Dobbs, 2007). Therefore, this study employed a mixed-method approach to provide more comprehensive understanding of the interplay of physical, social, and cultural factors and their impact on women's employment in Lahore, Pakistan.

Using the synthetic control method (Abadie & Gerdeazabal, 2003) and labour force surveys spanning over two decades (1990-2020), the study evaluated the impact of metro bus and ride-hailing services on female labour force participation by constructing a synthetic control series to compare it to the actual Lahore series. We constructed data for 28 cities (including Lahore) across four provinces of Pakistan. To analyse the impact of metro bus system on female labour force participation, data until 2018 was used because another mass transit system (orange line train) was launched in 2020.

The Lahore metro bus system was inaugurated in 2013, providing 10 years of pre-intervention data. The cities of Islamabad, Rawalpindi, and Multan were excluded from the control group as they had similar intervention in the post-intervention period. For reasonable prediction of the effect of metro intervention, three years post-intervention data were included, covering five years period with three data points. The ride-hailing services Uber and Careem were launched in Lahore and other cities in 2015/2016. However, no labour force survey was conducted during that period. Therefore, for the analysis purposes, 2014 was considered the intervention year. Moreover, certain cities (Faisalabad, Rawalpindi, Multan, Sargodha, Gujranwala, Sialkot, Bahawalpur, Islamabad, Karachi, Hyderabad, Sukkur, Peshawar, Quetta, and Mardan) were excluded from the control group due to introduction of ride-hailing services in the post-intervention period (2017-2020), spanning over four years.

For the qualitative analysis, we use semantic approach to thematic analysis, since we are primarily interested in women's perceptions and their experiences with using public and private transport options when travelling to their workplaces. The study targeted working women using either metro bus or ride-hailing services and collected data in Lahore through a structured questionnaire, semi-structured interviews, and key-informant interviews. The structured questionnaire was completed by a total of 53 metro commuters selected randomly at the metro bus stations. While a total of 48 ride-hailing commuters selected through snowball sampling combined with respondent driven sampling completed the structured questionnaire. Furthermore, we

conducted 10 semi-structured interviews with metro commuters and 10 with ride-hailing users. To understand the perspective of service providers, we conducted semi-structured interviews with the key informants of the following organisations: (1) Punjab Mass Transit Authority (2) The Urban Unit (3) Punjab Commission on the Status of Women (4) Ride-hailing (anonymous).

## Overview of key findings

Several insights can be drawn from the quantitative and qualitative analysis of the impact of public and private transportation services on the inclusion of females in the labour force in Lahore, Pakistan.

Using a synthetic control method, we found a small but positive impact of metro bus transit provision on the female labour force participation in Lahore. The estimate of the impact of metro bus system is the difference between female labour force participation rate between Lahore and synthetic Lahore from 2013 to 2018. The results indicated that female labour force participation in Lahore before the intervention of metro bus is best reproduced by generating synthetic Lahore as the weighted averages of Bahawalpur, Karachi, Sialkot, Hyderabad, Faisalabad, and Gujranwala. Figure 1 (left panel) shows the female labour force participation rates of Lahore and synthetic Lahore during period 1999-2018.

FLFP rate in synthetic Lahore closely follows the path of real Lahore for the entire pre-intervention metro period. The results show that FLFP rate in Lahore would have been lower if there were no provision of metro bus system. The metro bus, along with its feeder routes (speedo buses), provides an economical means of transportation and enhances accessibility, particularly for women seeking employment. Furthermore, the presence of security personnel at the metro stations, dedicated seating and standing area for women (inside the buses), along with an operating helpline for complaints has substantially reduced concerns regarding harassment of women.

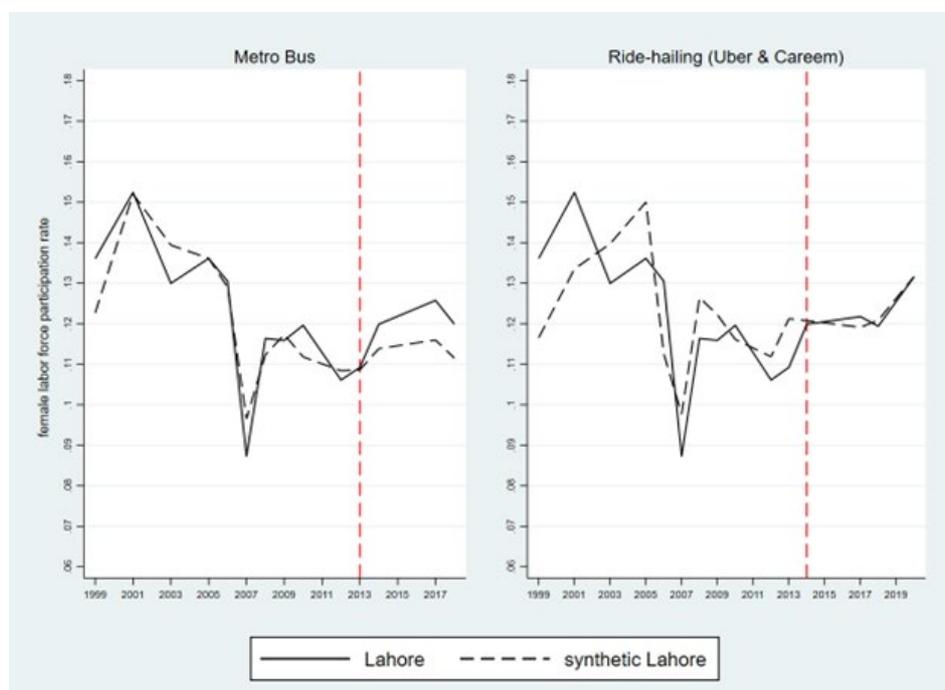
However, we found no evidence of a positive impact of ride-hailing service provision on female labour force participation rate in Lahore, Pakistan. Figure 1 (right panel) shows a noisy Lahore-control match for the pre-intervention (ride-hailing) period and no clear impact after the intervention (2014-2020). Female labour force participation in Lahore before the launch of ride-hailing is best reproduced by the weighted averages of Hazara, and Larkana. It is important to mention that due to unavailability of 2015/2016 labour force surveys, we choose 2014 as the intervention year to match the pre-intervention predictor balance.

Furthermore, the launch of ride-hailing in many metropolitan cities in Pakistan, which are similar to Lahore regarding socio-economic conditions, has resulted

in a poor match between Lahore and synthetic Lahore. This could be a potential reason for the lack of intervention impact. Furthermore, the research shows that the labour market behaviour of women in Pakistan is driven by necessity rather than intent (Amber & Chichaibelu, 2023a). Given that, ride-hailing customers come from higher income households, females belonging to these households tend to participate less in the labour market (Klasen & Pieters, 2015).

Additionally, considering the conservative social norms and behaviour of men towards female drivers, it seems highly unlikely that women can take advantage of the employment opportunities that come with the emergence of ride-hailing.

**Figure 1 : Female labour force participation in Lahore and synthetic Lahore under metro bus system and ride-hailing specifications.**



Qualitative analysis shows that majority of the women interviewed consider public transportation (metro bus, speedo bus, and orange train) affordable and easily manageable with the resources (monetary) they have. Ride-hailing users reported that ride-hailing is comparatively an expensive option, however, due to relatively higher earnings they can manage to afford it. In Figure 2, percentage breakdown based on income levels among female users of metro and ride-hailing service is depicted. The data revealed that 80% of metro users have a monthly income of less than Rs. 45,000, whereas the corresponding percentage for ride-hailing users is approximately 33%.

**Figure 2: Percentage breakdown based on the monthly earnings of metro and ride-hailing users.**



Source: Author's construction from structured questionnaire responses of metro (n=53) and ride-hailing (n=48) users.

In terms of accessibility, the majority of women expressed that their spatial position has significant influence on the transportation options they choose. The findings suggested that where they live or work play a crucial role in determining their mobility choices and employment opportunities.

While the majority of metro users enjoy the convenience of having metro stations within walking distance, there are females who rely on alternative modes of transportation (rikshaws, speedo buses, motorcycle rikshaws) to reach the nearest metro station. Therefore, infrastructure challenges remain as station locations may not be conveniently situated, requiring additional modes of transportation that can be costly and time-consuming.

Metro bus emerges as a time saver in terms of frequency i.e., headway time of three minutes and a dedicated route (no traffic jams). Despite the fact that ride-hailing is readily available, it suffers from traffic jams.

When deciding on transportation services, safety concerns emerged as an important factor to consider. Majority of the women expressed their satisfaction with the safety features offered by metro bus and ride-hailing services.

The findings also indicated that transportation planning in Lahore has been neglectful of gender consideration. It has resulted in insufficient provision of

transportation facilities for women, inadequate consideration for their safety and security, and low participation of female employees in the transport sector.

## Policy recommendations

Based on our findings, the following policy implications can be drawn:

- Improving the accessibility of public transportation, particularly by strategically locating metro stations and introducing feeder routes in areas with a high concentration of female work force will reduce the need for additional costly and time-consuming modes of transportation.
- There is a need to enhance the safety and security of female passengers in public transportation (all modes of public transportation) through implementation of policies that protect them from harassment and abuse. This can be achieved by increasing the number of female transport personnel, introducing gender-sensitive training, and strengthening the monitoring and reporting mechanism.
- Encouraging the participation of women in the decision-making process related to transport infrastructure planning and design. This will ensure that the unique needs and concerns of female commuters are taken into account and addressed in a gender-sensitive manner.

The following actions can be taken to increase the use of ride-hailing services among females who do not have access to affordable public transportation:

- The introduction of affordable ride-hailing services that cater specifically to female commuters. This can be achieved by collaborating with ride-hailing companies to offer discounted fares or subsidised rides for female workers who meet certain criteria, such as low-income or working in certain industries.
- Collaborating with employers and organisations to provide ride-hailing benefits to their female employees. The employers can offer ride-hailing vouchers or discounts as part of their employee benefits to their female employees or collaborate with ride-hailing companies to provide a dedicated shuttle service for female employees.
- Developing a simplified version of ride-hailing app that can be used on basic mobile phone and making it accessible to female commuters who cannot afford smartphones.

- To increase the employment of females as ride-hailing drivers, the service providers can collaborate with women-focused organisations to reach out to potential female drivers and provide them with training and support.

To enhance female labour force participation from higher-income households, more policies beyond the provision of transportation services are needed. For instance, there is a need to address socio-cultural barriers by challenging the traditional gender roles, promoting equal employment opportunities and supportive workplace policies, and providing resources and support to help women balance work and family responsibilities.

Finally, conducting regular assessments of public and private transportation services, specifically examining their impact on female labour force participation, and making necessary policy adjustments can promote inclusivity, accessibility, and increased participation of women in the labour force within an urban context.

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