CHARACTERISTICS AND MOBILITY RESTRICTIONS

Urban freight is complex and fraught with challenges. This is particularly true in economies such as India’s, due to the scale of urban agglomerations and high population density. Relevant research is critical for addressing these challenges. This study focuses on urban freight characteristics and mobility restrictions in Delhi.

Freight Characteristics

In the absence of freight trip data on Delhi in the public domain, such as the commodity survey by the US federal agencies, an establishment survey was designed and data collected from 1800 establishments – shippers, carriers, and receivers – all over the city. Various characteristics of businesses (such as trip frequency, type of commodity, origin and destination, nature of business, number of employees, floor area of establishment, timings, and modes used for goods movement) were included in the survey. This surveying method can provide more valuable information about shipments than
During the implementation of these restrictions, perceived improvement in road safety and congestion. The public sector rationale for these restrictions is the on identified roads during specific time windows. The numbers speak for themselves. Amongst total documented incoming trips, 29% were NMT and 15% MTW trips: almost half did not use trucks. Similarly, 21% and 30% of outgoing trips can be attributed to NMT and MTW respectively, making truck trips less than half of the total trips produced. MTWs should be of particular interest, because they respond well to space constraints and ensure timely deliveries at costs lower than motorized truck trips (for appropriate shipment sizes) without the physical drudgery associated with NMT.

In terms of FTG modeling, the findings in Delhi are similar to other studies in the literature. For most business sectors, trip rates are constant for both incoming and outgoing trips, but the specific rate depends on the sector. These models can be quite useful for detailed freight and urban planning.

Lastly, Off-Hour Delivery (OHD) involves potentially inconveniencing establishments. However, international experience reveals that OHD is an effective way to mitigate traffic externalities such as congestion, pollution and delays. In Delhi, despite the inconvenience, OHDs are already in vogue without any explicit policy efforts. About 37% of all establishments already use OHD, particularly in the wholesale and retail trade sectors, which make up about 87% of the establishments involved in OHD. Further research can help determine how more establishments can move to OHD.

### Mobility Restrictions

Globally, mobility restrictions are a common intervention to address externalities due to urban freight. The Delhi study used inputs from establishment surveys, interviews with public sector officials and carriers, and analysis of media reports. Several findings emerged from the analysis.

First, freight traffic management is complex due to the plethora of agencies handling it. The ownership of these agencies by various levels of government (Municipal, State, Union) makes matters worse. Delhi has seen restrictions on entry times of freight vehicles, and bans on the presence of larger vehicles on identified roads during specific time windows. The public sector rationale for these restrictions is the perceived improvement in road safety and congestion.

Second, no stakeholder consultation was done during the implementation of these restrictions, and no formal impact evaluation was done after the restrictions were put in place.

Lastly, these restrictions have been in place for a long time, and most carriers have found ways to manage them through bribing officials or adopting appropriate logistics strategies. Having said that, the carriers do rue the presence of these restrictions due to the complexity they bring to operations. The receivers too have adjusted to the restrictions. For some, carriers ensure that their requirements are met. For others, this may be one of the reasons behind the observed shift to OHDs. However, in the absence of formal evaluation, it is not clear if the restrictions have reduced congestion or actually increased it, because it appears that carriers attempt to satisfy receiver needs by substituting multiple small trucks for the restricted large trucks. An analysis to address this question requires data of a type and scale not currently available. Collecting and assessing such data could be an interesting extension of this study.

### Implications and Road Ahead

Overall, the study can enable better freight planning in Delhi. Similar studies would be useful in the proposed smart cities in India. The observed freight characteristics in Delhi point to the significant presence of NMT and MTW trips, which could be studied in detail to gain insights into ways to address high congestion due to space constraints. In terms of interventions to reduce freight externalities, implementation of mobility restrictions should happen with due stakeholder consultation for better results and must be followed by impact evaluation. Lastly, OHDs, which are already popular in Delhi, are a promising intervention for reducing externalities. Detailed studies could help increase OHDs and their positive impacts.

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