Fiscal instruments for low carbon transport in Chennai

This project examines the feasibility of implementing a congestion tax for the city of Chennai in the State of Tamil Nadu. Based on secondary data, it calculates the time cost, fuel cost and cost of emissions due to congestion and makes recommendations regarding the effective design and application of such a tax. Chennai ranks one of the highest among all South Asian cities in terms of GHG emissions as well emissions of other criteria pollutants, especially NOx and PM10. The city also suffers from heavy volumes of traffic and congestion, particularly on the arterial roads. Several proposals have been discussed by the Chennai Corporation, in the recent past, to tackle these twin problems of congestion and pollution. Some of the options that are being considered include congestion tax, electronic road pricing, and ramp metering. This study, funded by Shakti Foundation, represents an attempt to analyse one such option by quantifying the costs of congestion for the city of Chennai and making recommendations regarding levying a per trip charge in heavily congested corridors of the city.

Data for this study has been taken primarily from the Chennai comprehensive study on transport. The study revealed that in the Chennai Metropolitan region, congestion increases travel times by 1.5 - 61.8% depending on the direction of the travel. As a result of this congestion, fuel is wasted as the engine cannot run at optimal speed of the gear, emissions increase and also affects the welfare of the citizens. The additional time cost due to congestion was estimated at ₹68.59 Crores per year in 2009 which would increase two fold by 2016 if no action is taken (assuming the same real cost of time). Fuel cost of congestion is estimated at ₹1.53 Crores per day or ₹558.45 Crores per year for 2009. The health cost of pollution load from vehicles in Chennai for the year 2009 has been estimated to be ₹78 Crores.

Thus the time costs, fuel costs and emission costs together have been estimated at approximately ₹705.05 Crores annually. Assuming that the cost is distributed based on the kilometers travelled, this works out to be ₹3.06 per km per day. Based on an average trip length across different modes of transport of approximately 10 kms, the externality costs are computed as ₹30 per trip in a day based on 2009 data. To begin with, the study recommends levying a congestion fee of ₹30 per trip on the heavily congested stretch of radial roads on an experimental basis and then finding solutions to decongest the arterial roads.

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