ABSTRACT

SOCIO-ECONOMIC ANALYSIS OF PEDESTRIAN BRIDGES:
A CASE STUDY IN KOLKATA

A pedestrian bridge (PB) is an installation for grade separation, usually done to decongest roads from pedestrian traffic and to prevent accidental risk. Over the time-span of two decades, ten pedestrian bridges have come up in different parts of Kolkata and its adjacent area, constructed at different points of time. The bridge user’s profile in general is not encouraging. The pedestrians generally prefer to cross the road at the same level, mostly to save time, sometimes out of sheer ignorance and also out of lethargy. As a result, none of the objectives of PB installation is achieved to the fullest extent. The density of population per household, male to female ratio and other demographic factors of pedestrians and also some social factors are responsible for this. The study is an attempt to see their impact on use / non-use of PB.

Pedestrians constitute highest among the different groups of people involved in road accident cases during 2001-12 in Kolkata, followed by other road users. To assess risk intensity of every traffic accident, the probability of a definite traffic accident incidence and suitable appearance of traffic accident effects has been estimated. Vehicle-wise degree of accidental risk for all road users has also been analysed in the study.

A study based on primary data has also been conducted on the utilisation pattern of pedestrian bridges and to ascertain their underlying reasons. What best we can observe in the incidence of bridge use, though it depends on many factors, is whether a person uses the bridge or not. So, the observed variable is categorical and binary in nature. The effects of different socio-economic factors on overall incidence of using pedestrian bridges as well as some selected bridges in Kolkata and adjacent area have been estimated with logistic regression model. Pedestrians’ gender differences, age groups, time interval in a particular day, problems of using pedestrian bridge, traffic rules consciousness, occupational and income differences of pedestrians have been considered as major significant variables for studying use of pedestrian bridges in Kolkata.

A post-implementation review of pedestrian bridges has been made. “Social Cost Benefit Analysis” technique has been used for evaluating investment in PBs from the society’s point of view. Private costs and benefits; and externalities of the pedestrian bridges have also been taken into consideration. The net present value (NPV) and internal rate of return (IRR) method are applied to estimate net private benefits of the projects. The results of valuation of externalities are either positive or negative for different PBs. But social benefit has always been higher than social cost in my study. The NPV at 12% has also seen positive and IRR has been found between 16% and 25%.

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