ANALYSING MODE CHOICE BEHAVIOUR OF EDUCATIONAL TRIPS: A CASE STUDY OF KHULNA CITY

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ABSTRACT
At present urban transportation has been increased rapidly and the increasing number of public and private transportation in urban areas causes many problems (e.g. congestion, accident, CO₂ emission etc.). So, urban transportation has become a major concern for addressing travel demand of the people without unfavourable consequences. People often travel for various purposes (e.g. work, education, recreation) due to availability of different transport modes. This paper investigated current travel behaviour (i.e. mode choice) of students from different educational institutions and their influencing factors in Khulna City. A questionnaire survey was conducted to collect information of 250 respondents. Using Multiple Linear Regression (MLR) model this study investigated the factors (e.g. income, vehicle ownership, age, cost etc.) that influence mode choice of educational trips. Analysing data this study found that travel mode choice is significantly influenced by age, gender, vehicle ownership, household ownership, and earning member of the respondents. Though this study is very important for identifying mode choice behaviour of educational trips in Khulna City, it has rarely addressed the influence of built environment and self-selection factors (e.g. attitudes, preference) on travel behaviour.

Keywords: Mode choice, travel behaviour, educational trip, Multiple Linear Regression (MLR), Khulna City.

Introduction
Khulna is the 3rd largest city and 2nd sea-port in the south-western part of Bangladesh having a population of 663,342. The literacy rate among the urban people of Khulna is 59.1%, which is quite higher than the national average of 56.5% (Census 2011). People generally travel to get benefit for various purposes due to technological advancement and availability of transport services (e.g. cycle, rickshaw, easy-bike, motor-bike, tempo, bus, van, car etc.). The demand for transport services varies from person to person due to needs, purposes, capability etc. and some person prefer public services and some prefer private services. Among the population 32% have their own vehicle (Siddique, 2010). For this reason excessive demand of various mode choices causes negative impact on urban transport and environment.

Objectives
This paper has investigated the current travel behaviour of the students of different educational institutions and their influencing factors (e.g. age, gender, cost, earning member, household ownership, vehicle ownership etc.).
Methodology

This paper has been done according to some steps i.e. a) study conceptualization, b) objective preparation, c) literature review, d) questionnaire preparation, e) variable selection (e.g. dependent-mode choice, independent-age, gender, income etc.), f) data analysis and interpretation. Multiple Linear Regression (MLR) model was used for analysing data in SPSS. Using MLR equation:

\[ Y = A + B_1X_1 + B_2X_2 + \ldots + B_nX_n \]

Here, \( Y \) = Transport mode choice; \( X_i \) = Independent variable (e.g. vehicle ownership, household ownership, walking time to and from stops, age, gender etc.); \( A \) and \( B_i \) = Parameters.

Results and Discussions

Table number-1: Coefficients\(^a\) of variables

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
<th>95.0% Confidence Interval for B</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
<td>Lower Bound</td>
</tr>
<tr>
<td>(Constant)</td>
<td>1.078</td>
<td>1.294</td>
<td>0.833</td>
<td>0.406</td>
<td>-1.471</td>
</tr>
<tr>
<td>Age</td>
<td>-0.369</td>
<td>0.178</td>
<td>-0.120</td>
<td>-2.069</td>
<td>0.040</td>
</tr>
<tr>
<td>Gender</td>
<td>1.324</td>
<td>0.347</td>
<td>0.227</td>
<td>3.810</td>
<td>0.000</td>
</tr>
<tr>
<td>Household ownership</td>
<td>0.215</td>
<td>0.328</td>
<td>0.037</td>
<td>0.656</td>
<td>0.512</td>
</tr>
<tr>
<td>Vehicle ownership</td>
<td>1.984</td>
<td>0.361</td>
<td>0.320</td>
<td>5.503</td>
<td>0.000</td>
</tr>
<tr>
<td>Earning member</td>
<td>0.595</td>
<td>0.296</td>
<td>0.116</td>
<td>2.012</td>
<td>0.045</td>
</tr>
</tbody>
</table>

\(^a\) Dependent Variable: Transportation mode choice

From analysing the data it has been found that gender, household ownership, vehicle ownership and earning member has positive relation with transportation mode choice but age has a negative relation and influenced significantly. But the influence of build-environment and self-selection factors (e.g. attitudes, preference etc.) has been rarely addressed in this paper.

Findings

In this paper, it has been found that rickshaw is the major transport modes of the students of different educational institutions and the factors e.g. age, gender, household ownership, vehicle ownership and earning member of the respondents have significant influence on their mode choice.

Reference