Abridgment

Analysis of User Response to the 1975 New York City Transit-Fare Increase

Felix C. Obinani, Tri-State Regional Planning Commission, New York

This paper describes how before and after survey data were used to supplement aggregate ridership counts in describing the effects of a fare increase on patrons of the New York City transit system. While the overall rate of ridership decline may be sufficient for a financial analysis, the growing recognition of the role of transit in economic, social, and equity issues requires more in-depth understanding of the kinds of people who ride less or sacrifice mobility when transit-fare increases occur. Two surveys, one before the fare increase was announced and another 3 months after its implementation, allowed the analysis of a before and after pattern of transit use by a given sample of riders. (Except for those derived by inference, data on the effects of fare increases on the various groups of riders and the types of trips abandoned did not previously exist for the New York City transit system.)

SURVEY METHODOLOGY

The Tri-State Regional Planning Commission conducted an opinion survey of area households in June 1975. The questions on trip characteristics and opinions on transportation issues included one on how the respondents would change their transit riding habits if there were a fare increase from 35 to 50 cents.

The specific question asked of household heads who use the New York City transit system to go to work was, "If the bus and subway fares in New York City increased to 50 cents, which of the following would you most likely do? Would you continue to use public transit to go to work, drive to work, walk to work, ride a bicycle, take a taxi, or do something else?"

A similar question about off-peak use was asked of household heads who live in New York City and who reported using the transit system during off-peak periods. The reaction to the 50-cent fare was expected to be exaggerated. However, the responses to these hypothetical questions would make it possible to examine the impact of the fare increase on the various transit modes by time of day.

Soon after the survey was completed the Metropolitan Transportation Authority announced an increase in the basic fare from 35 to 50 cents, beginning September 1, 1975. This situation provided the unique opportunity to complete a before and after study of a given sample of users and their behavioral response to the fare increase.

The before portion of this study consisted of telephone interviews with primary wage earners in households in the tri-state region. The after portion of the study was a reinterview of all of the New York City residents in the original sample who use subways or buses either for work trips or during the off-peak hours. This provided the posttest half of the one group pretest-posttest design without a control group.

Reinterviewing the original respondents, as opposed to selecting an entirely new sample, had several advantages: Accurate preincrease and demographic trip information on this cross section of users was available and their anticipated reaction to the fare increase was known. These conditions provided the opportunity to focus analysis on user groups of particular interest and of known trip and demographic characteristics. Post-fare increase interviewing was conducted in December 1975 after 3 months were allowed for ridership to stabilize.

RESULTS

Predicting Ridership Responses to Fare Increases

If small sample surveys could be used to reasonably predict behavior changes, they might be useful adjuncts to observed elasticities in considering price and service changes. However, attempts to predict future behavior by presenting hypothetical questions to respondents are fraught with problems. When the subject is emotionally charged and the respondent's experience and perceptions of the alternatives (other modes) are unclear or incorrect, the problems are magnified.

Nonetheless, the rather simplistic prediction question used in the first survey resulted in only moderate overstatements of expected change. Overstatement was expected for at least two reasons: (a) Respondents may honestly overestimate the ease of changing modes, only to find, when the fare rises, that the alternatives are not as good as were expected and (b) responses may reflect the reaction of near-captive riders to price increases perpetuated by an agency held in bad repute (the spite effect).

The table below shows the respondents' predictions in June 1975 and their actual measured responses in December 1975.

<table>
<thead>
<tr>
<th>Response</th>
<th>Predicted (%)</th>
<th>Actual (%)</th>
</tr>
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<tbody>
<tr>
<td>Would change work trip</td>
<td>20</td>
<td>15</td>
</tr>
<tr>
<td>Would change to</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Automobile</td>
<td>46</td>
<td>59</td>
</tr>
<tr>
<td>Car pool</td>
<td>12</td>
<td>18</td>
</tr>
<tr>
<td>Solo driver</td>
<td>34</td>
<td>41</td>
</tr>
<tr>
<td>Walk</td>
<td>23</td>
<td>16</td>
</tr>
<tr>
<td>Bus (from subway)</td>
<td>14</td>
<td>14</td>
</tr>
<tr>
<td>Other</td>
<td>16</td>
<td>11</td>
</tr>
<tr>
<td>Would use less transit</td>
<td>47</td>
<td>38</td>
</tr>
<tr>
<td>Discontinue use</td>
<td>25</td>
<td>4</td>
</tr>
<tr>
<td>Use less often</td>
<td>22</td>
<td>34</td>
</tr>
</tbody>
</table>

The one-third overestimation of work-trip changes represents too many people saying that they would take a taxi or a bicycle or walk to work if the fare rose to 50 cents. For off-peak travel, there was an overestimation by a 47 to 38 percent margin of the number of households whose members would use less transit.

The households grossly overestimated the degree of use reduction, with 25 percent predicting complete discontinuation of transit use but only 4 percent actually doing so.

While the aggregate estimate was not badly in error, the response of an individual in the first survey was of no use in predicting his or her actual behavior, i.e., those who said they would not change (in the first survey) were as likely to change as those who said they would change.
The rate of change in work trips was analyzed by a number of socioeconomic, demographic, and trip characteristics. The work-trip changers were rather evenly spread across all income, racial, educational, and age groups. The trip characteristics such as length, cost,
and arrival time at work also showed little correlation with the rate of work-trip change (4). Table 1 shows that the lowest rate of work-trip changes is among household heads with lower incomes, having no more than a high school education, under 34 years of age, and nonwhite.

The workers with automobiles available were nearly twice as likely (21 to 11 percent) to change their work trips as were workers with no automobiles. Automobile availability was also the factor most associated with using less off-peak transit. Approximately 36 percent of the household heads who changed their work trip required more than one fare to complete their journey. The incidence of double fare zones among general transit riders is unknown. In New York the double fare patron usually uses a city bus from home to a subway station where he or she transfers (at full fare) to the subway for the major portion of the trip. Although the number of interviews with users of this type was small, the elimination of the feeder bus by driving or walking to the subway station appeared to be a very popular reaction to the fare increase. This hypothesis is supported by the large response (44 percent) to free transfers between subway and bus as an action that would prompt a change back to the former work-trip mode.

Transit riders who work in Manhattan are less likely to change their trip mode (13.7 percent) than are riders who work in other New York City boroughs (18.1 percent). The mode used by these two groups for their new work trip is even more interesting: Only one-half of the Manhattan-bound workers changed to automobiles (42 percent to solo and 9 percent to car pool), while over 93 percent of the workers in other boroughs changed to automobiles.

ATTITUDES TOWARD THE FARE INCREASE

An interesting adjunct to the data presented above is how citizens react to such governmental activities as increasing transit fares. In this particular study, respondents were asked whether or not they believed that the 15-cent fare increase on New York City subways and buses was necessary. Overall, 62 percent of the households considered that the fare increase was not necessary. But among the households who changed their transit-use behavior, 80 percent said that the fare increase was unnecessary.

The strength of the feelings about the fare increase was however not transmitted into protest actions. When those reporting the fare increase as unnecessary were asked whether they had publicly expressed their opinions on the fare increase, 80 percent said that no action had been taken. Of the actions taken by the remainder, 16 percent had signed petitions, 5 percent had written letters, and a small minority, especially among those who use transit to work, had participated in a demonstration.

CONCLUSIONS

The New York City transit system has had three basic fare increases in the past 10 years. Published data (Table 2) are available on only the 1966 increase from 15 to 20 cents. Lassow (5) has discussed the results of that increase, giving data on changes by time of day, double fare zones, and the economic status of changers. As a proxy for economic status, he selected 13 subway stations in low-income neighborhoods and 10 midtown stations adjacent to train and bus terminals (assuming commuters to be high-income representatives) and showed that morning rush-hour ridership at the midtown stations actually increased. Unfortunately, this comparison can be viewed as one on the differential impact of fare increases on city and suburban residents, as well as one on the users of the subway as either a primary or a secondary mode of travel. This analysis nonetheless showed that low-income ridership declined more significantly than the system average at all times of day. The elasticities implicit in this analysis are approximately those used by the Metropolitan Transit Authority and others in predicting the effects of the September 1975 fare increase.

The 1975 transit-fare increase, however, resulted in ridership reductions in roughly equal proportions from all major socioeconomic and demographic groups, which is, of course, different from the concept of the differential financial burdens of fare increases. The survey results support the theory of automobile availability as a major determinant in mode-choice decisions. The overrepresentation of riders from double fare zones among the changers emphasizes the urgency of a comprehensive transfer policy to mitigate the effects of two fares on this group of riders.

The small-scale surveys employed here do appear to add considerable detail to our knowledge about the effects of a fare increase. While the sample sizes, which were limited by the initial survey, do not permit highly precise estimates, they are sufficient to uncover major variations among groups. Some changes in universe definitions to include all subway riders rather than just household heads (again fixed by the first survey) would allow estimates that are more comparable with the traditional gross ridership measures.

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REFERENCES


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