

ATTITUDES TOWARD TRANSIT SERVICE IN SMALL URBAN AREAS

David L. Weiss and Alfred J. Neveu, New York State
Department of Transportation

An analysis of the attitudes of residents of several small urban areas toward transit improvement was conducted in an attempt to identify groups with similar preferences. The groups were described by several demographic characteristics: age, sex, auto owned. Two methods were used: a comparison of the preference rankings of each group across the cities; and discriminant analysis to identify groups with similar attitudes. The results indicate that there is some similarity within certain demographic groups, across the cities. However, respondents as a whole exhibited great similarity of preferred choices, irrespective of demographics or city. The two most preferred improvements were special vehicles for the handicapped and reduced fares for the elderly and handicapped. It is concluded that there exists some similarity in the attitudes towards transit improvement among the cities, but the development of any distinct groups proved impossible with the limited set of demographics available for use in this study.

This study compares the attitudes of the residents of seven small urban areas in upstate New York towards transit service improvements. The objective is to test the hypothesis that a similarity of attitudes towards transit improvements exists within certain demographic groups across these communities, independent of the residence location. If the hypothesis is found to be correct, the necessity to survey each small urban area to determine the response to various system improvements will be reduced, saving a considerable amount of time and effort in the planning for those improvements. The availability of this large data base, consisting of data from small urban areas, provided an excellent opportunity to test this hypothesis.

Background

During 1974 and 1975, home-interview surveys were conducted in small upstate New York cities. The New York State Department of Transportation

(NYSDOT) surveyed three cities (Hudson, Johnstown-Gloversville, and Oneonta) and Applied Research Integration, Ltd. (ARI) surveyed four cities (Glens Falls, Plattsburg, Watertown, and Elmira). The purpose of these studies was to determine the potential market of fixed-route and dial-a-bus operations. In each community, respondents were chosen at random, and questions were used to determine the frequency with which the respondent would use those bus services under varying levels of fares and gasoline prices (non-commitment ridership), the level of subsidy the respondents were willing to pay to support the system, and attitudinal questions asking for the individual's most preferred system improvement. Map 1 and Table 1 summarize the location and characteristics of the communities. It should be pointed out that these places are not suburbs of large metropolitan areas, but rather, each is the central point for a fairly large rural region.

An analysis of the non-commitment ridership rates (1) showed that the expected number of trips per week per resident was approximately the same for similar residents across each community. Two possible reasons were advanced to explain that similarity. First, the method used to forecast the ridership rates could force the same results for each city, or alternatively, the people in those communities could have the same attitudes towards transit. The purpose of this study is to examine the attitudinal information in the data set in an effort to determine if any similarity of attitudes towards transit exists between these small upstate New York cities, or among the various groups within them.

Limited evidence now exists to support this hypothesis from two studies dealing with the comparison of attitudes in small urban areas. The first was performed in New York State, comparing the attitudes of different urban areas toward transit service (2). A statewide public opinion poll of 1,000 households was conducted on public transportation roles, services, and financing. Included in the survey was a question dealing with reduced fares and special services for disadvantaged groups, specifically the elderly and handicapped, low-income, and school-age children. It was reported that, generally, there was strong support to provide some special services and/or

Map 1. Location of the small urban areas in New York State.

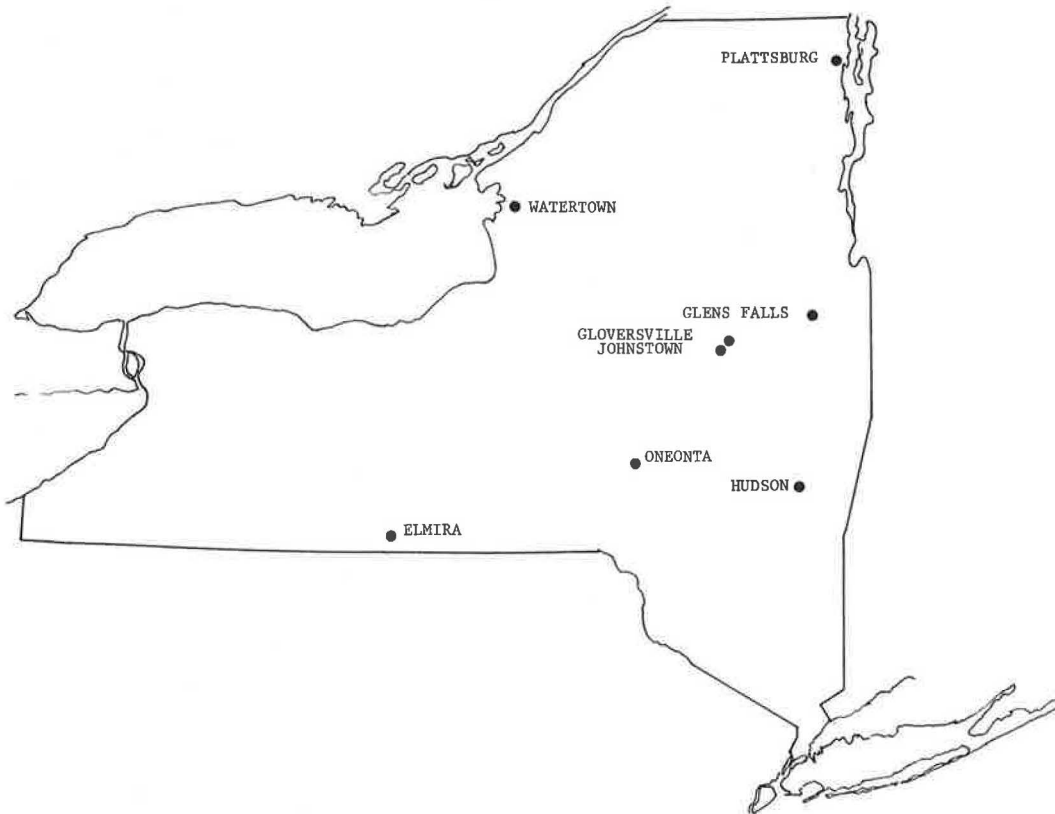


Table 1. Characteristics of the small urban areas.

City	1970 Population	% 65+	% 0-Car HH	1970 Median Family Income	% Blue Collar
Glens Falls	17222	14.3%	24.3%	9861	53.9%
Plattsburg	18715	9.9%	20.7%	10165	43.5%
Watertown	30787	14.9%	24.5%	10113	52.7%
Elmira	39945	13.7%	27.8%	9145	55.8%
Hudson	8940	17.4%	36.4%	9093	58.0%
Johnstown- Gloversville	29722	15.6%	22.5%	9576	63.4%
Oneonta	16030	11.2%	21.8%	11062	41.5%

lower fares for the elderly and handicapped, followed by school-age children, and low-income. This sentiment was expressed by all groups across the state.

The second study (3) reviewed the effects of transportation availability on the vitality of small communities, and the transportation-related problems and needs of those areas. Eight small communities in Maine, Vermont, South Carolina, and Colorado were studied. Over 300 interviews with community leaders, employers, and other residents were conducted to determine their perceptions of

the existing transportation facilities and needs. In addition, about 100 questionnaires were distributed to those people interviewed to survey their opinions on alternative transportation strategies for meeting those needs. The results of the interviews and surveys showed there is great concern for the mobility of the transportation-disadvantaged, specifically the elderly, the handicapped, and the low-income. Strategies for dealing with this need were ranked high by those individuals who completed the questionnaire. No discernible pattern by which the states varied

from one another was observed in these results.

Questionnaire Structure

In each survey the respondents were asked to indicate which one of a set of potential improvements to a transit system they would prefer most (Table 2). The list of possible improvements used in each questionnaire was virtually identical; however, the surveys differ in the system for which the preferred improvement is requested. The NYSDOT surveys directed the respondent to indicate the most preferred improvement for each system, fixed-route and dial-a-bus, separately, where the potential improvement list differed slightly. The ARI survey requested that the individuals select their most preferred improvement for any of the three systems (fixed-route, dial-a-bus, and shared-ride taxi) with the list of possible improvements similar to the NYSDOT lists. Almost half of the options have to do with reduced fare policies for special groups. Only one had any relation to the work trip (subscription service); the rest were primarily for non-work travel. Since these questions were asked in slightly different contexts, care must be exercised when comparing the responses among cities.

Analysis

An examination of the responses to the NYSDOT surveys revealed that each city surveyed expressed similar preferences for improvements to fixed-route systems and improvements to dial-a-bus systems. Thus, the responses to the NYSDOT questions can be assumed to be independent of the bus system under consideration, and hence, are directly comparable to the ARI responses.

The analysis of the responses was performed in two phases. First, a ranking of the improvement options based on the frequency each was selected by the respondents was developed for each community,

controlling for several demographic characteristics. The second phase used discriminant analysis to uncover similar groups of respondents based on their most preferred system improvement. Due to data access limitations, discriminant analysis was only performed in two cities: Hudson and Johnstown-Gloversville. Each city was examined using two types of groupings of respondents: one with two different categories of improvements, and the other with three.

The results from the frequency rankings are illustrated in Figure 1. The improvements shown here are those which placed at the top of the frequency rankings. The information for each city, across the demographics, is read horizontally; the information for a demographic group, across the cities, is read vertically. The dominance of the preferences for Reduced Fares for the Elderly and Handicapped is obvious. Other improvements are also rated first in the frequency rankings, but Reduced Fares for the Elderly and Handicapped is clearly the next most preferred improvement. The similarities between the cities within the demographic groups are also evident. However, there is also similarity between the demographic groups, within the cities, as evidenced by Oneonta, Hudson, Watertown, and Plattsburg.

Based on these results, several conclusions can be reached. In most communities and most demographic groups, the most preferred system improvements are Reduced Fares for the Elderly and Handicapped followed by Special Services for the Handicapped. In most cities and groups, these two transit improvement options rank as the top two respectively. This indicates some concern by all the residents of these areas for special planning for those special groups. Secondly, it is clear that the demographic characteristics of AGE, SEX, and AUTO OWNERSHIP seem to have little effect on the individual's preferences for transit service improvements.

For the discriminant analysis, the three demographic variables used earlier are included, as well as two others: PROPOSED TRIP PURPOSE ON LOCAL

Table 2. List of improvement options.

Improvement	NYSDOT		ARI
	Fixed-Route	Dial-A-Bus	All
Special vehicles for handicapped	x		x
Buses to special events	x		x
Reduced fares for elderly and handicapped	x	x	x
Reduced fares for poor	x	x	x
Reduced fares for school children	x	x	x
Reduced fares for everyone during midday	x		x
Free shopping trips to particular stores	x	x	x
Evening service ^a	x	x	x
Weekend service ^a	x	x	x
Subscription service		x	x
Family and group reduced rates		x	
Other	x	x	x

^a Combined into one improvement in NYSDOT survey (evening and weekend service)

Figure 1. Most preferred improvement options.

City	Sex		Autos Owned			Age		
	Male	Female	0	1	1+	15-24	25-54	55+
Johnstown-Gloversville						Diagonal lines (top-left to bottom-right)		
Oneonta								
Hudson								
Watertown								
Plattsburg								
Glens Falls						Grid pattern		
Elmira			Diagonal lines (top-left to bottom-right)	Grid pattern				

KEY: Reduced fares for the elderly and handicapped

Special vehicles for the handicapped

Evening/weekend service

Reduced fares for everyone during midday



BUS, and PROPOSED TRIP PURPOSE ON DIAL-A-BUS. These variables were used to see how well they would discriminate between groups of respondents. In each of these two cities, two discriminant analysis runs were performed, dividing the respondents into two or three categories, based on the most preferred improvement selected by each individual. These categories are listed in Figure 2. It is felt that these categories represent some rational groupings of the improvement options.

The results for this portion of the analysis are presented in Tables 3-6. In no case were the discriminant models significant. All had insignificant F-statistics, and the model could only

correctly classify 60% of the respondents. Therefore, it can be concluded that the variable used in these models (AGE, SEX, AUTO OWNERSHIP, and the two TRIP PURPOSES) are not good predictors of the preferences for transit service improvements. This discriminant analysis result gives added support to the conclusion reached in the first portion of the analysis: i.e., the demographics have little effect on the respondent's choice of service improvement.

Figure 2. Categories used in discriminant analysis.

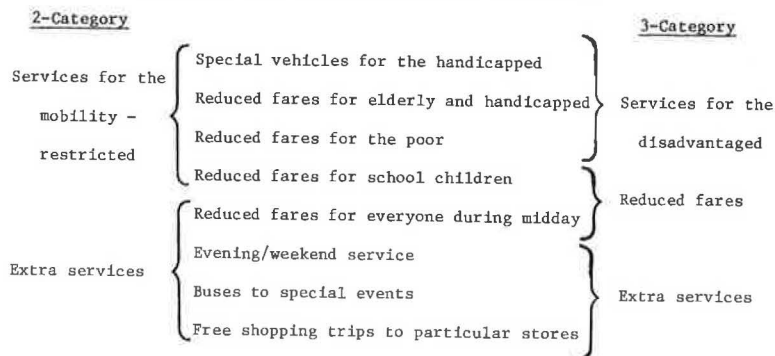


Table 3. Discriminant model statistics.

City	Groups	Approx. F	U-Statistic
Johnstown-Gloversville	2	1.717 (5,196)	
Johnstown-Gloversville	3	1.203 (10,390)	0.981 (5, 2, 199)
Hudson	3	2.348 (10,394)	0.891 (5, 2, 201)

Table 4. Johnstown-Gloversville, 2 group classification.

Group	Number of cases classified into group	
	A	B
A	<u>78</u>	50
B	24	<u>40</u>

Table 5. Johnstown-Gloversville, 3 group classification.

Group	Number of cases classified into group		
	A	B	C
A	<u>54</u>	16	29
B	22	<u>14</u>	19
C	15	13	<u>20</u>

Table 6. Hudson, 3 group classification.

Group	Number of cases classified into group		
	A	B	C
A	<u>67</u>	40	27
B	9	<u>25</u>	14
C	6	8	<u>8</u>

Conclusion and Implications

In summary, it was found that the most preferred improvements to transit service were Reduced Fares for the Elderly and Handicapped, and Special Services for the Handicapped. Similarity of attitudes was found among the cities within each demographic group. However, there was also similarity between the groups themselves, leading to the conclusion that the groups are not distinct. It may be stated that the residents of these seven small urban areas exhibit similar attitudes towards transit service improvements, and the strength of that similarity is strong. There is extremely strong support for planning for the elderly and handicapped by almost every group in every city. The mobility problems of these travelers are a

large concern of the residents of these communities. The implication of this type of study is important since survey efforts to plan transit services in other communities may be reduced, reoriented, or eliminated if a similarity of attitudes is uncovered. The responses to the implementation of, or improvement to, a transit system could be better predicted. If it functions well in one area, planners could expect a similar reaction from the residents of another area. The development of effective and efficient transit improvement strategies could be enhanced by consideration of the residents' attitudes toward various options. A word of caution, however: care must be exercised to account for any special or extraordinary groups or attitudes which may be present in the area being studied, as these groups or attitudes may seriously affect the results.

Overall, it is felt that this research shows some promise, and future efforts should be initiated to further the conclusion reached in this study.

References

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