

# Segmentation Analysis of Transit Users and Nonusers

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Douglas P. Blankenship, Orange County Transit District, Santa Ana, California

In a survey to evaluate factors that influence the use of public and personal transportation modes in the Orange County Transit District, a stratified random sample of households was used to ensure accurate spatial representation. A total of 1800 in-home, personal interviews were conducted between June 28 and July 21, 1974. This sample size allowed analysis of subgroup differences at a high level of statistical reliability.

## ATTITUDES

Various techniques, including market segmentation analysis, were used to ascertain the attitudinal framework, which plays a key role in the use of transportation by Orange County Transit District residents.

## AUTOMOBILE VERSUS BUS ATTRIBUTES

Thirteen characteristics of car and bus travel were rated on a seven-point scale. A multidimensional scaling analysis of these data revealed the following facts:

1. In terms of simplicity of use and convenience, automobile travel outranks bus travel.
2. The most positive rating given the automobile was for its simplicity of use.
3. Bus travel is perceived to be safer, more relaxing, and less expensive than automobile travel. The largest differential between the two transportation modes, among the 12 characteristics measured, was expense.
4. Buses are perceived as being slow during rush hour, but the automobile was even slower.

In summary, Orange County residents seem to have a fairly open attitude toward bus travel and feel most negatively toward the automobile in terms of its expense.

Thus, any media content in a marketing strategy must positively emphasize the positive and neutral aspects of bus travel to influence public acceptance of public transportation.

## DEMOGRAPHIC, PSYCHOGRAPHIC, AND LIFE CYCLE PROFILES

The survey identifies various demographic and psychographic profiles that may impact current, future, private, and public transportation modes. Following are some of the key findings about attitudes toward the automobile and traffic in general:

1. Younger age groups with more education and higher incomes, in professional, technical, and managerial occupations, are less inclined to believe that freeways and automobiles must remain the dominant transportation mode in Orange County.
2. Persons who are in the lowest income group are currently transit captive, use the Orange County Transit District bus at least once a week, are 18 to 24 years of age, or are school commuters and are most likely to agree with the statement that traffic today is almost unbearable.
3. The youngest age group (18 to 24) tends to be more transit receptive than other age groups.

Orange County Transit receptivity by the younger age group suggests that the district's marketing program should make specific appeals to this age group to increase ridership. These younger and less affluent persons have not developed reliance on private transportation modes and thus appear to be more receptive to the use of public transport.

Responses to statements that identify groups most willing to try new things suggest that the following characteristics are associated with innovativeness: perceived leadership ability, desire to try new things, age 44 years and younger, post graduate status, annual income of \$15,000 or over, political independence, slight disagreement to adjustment to public transportation, and neither physical nor psychological automobile captiveness.

Although these subgroups may not now be transit de-

pendent, they will certainly be important from a marketing standpoint in providing the Orange County Transit District with a broad base of public support for future transit programs. Appeals to these subgroups must thus be part of the district's overall marketing strategy.

#### SOCIAL CLASS AND STATUS ANALYSIS

When three statements assessing the relationships between social status and transportation use were asked in this survey, respondents least concerned about the social status of riding a bus were found to be those who do not mind riding with the type of people who ride buses, make \$10,000 or less per year, are middle-aged, do not anticipate a major adjustment in using public transit at present, currently use public transit, consider themselves transit dependent, and feel comfortable talking to strangers.

This and other public transportation studies show that travel and access time factors are major deterrents to public transportation use. Among people most time-conscious are those who (a) would consider riding a bus, (b) drive an automobile to work 3 or 4 days a week, (c) moderately agree that it would be a major adjustment to use public transportation, (d) are 18 to 24 years of age, and (e) are from professional and technical households.

One positive aspect of the Orange County Transit District marketing approach to time would be to show that time can be saved by riding the bus (or other public transportation modes, such as dial-a-ride) and by pursuing other productive activities while en route. Studies show that perceived travel time decreases appreciably as meaningful activities increase.

#### FUNDING PUBLIC TRANSIT

Two-thirds of the sample believed that federal funds should be used to some degree to subsidize public transportation in Orange County. Half agreed that users should pay most of the cost, and slightly less than half disagreed with that position. Clearly the majority of respondents believe that public financing should make some contribution to public transportation.

#### FROM PSYCHOLOGICAL AUTOMOBILE CAPTIVITY TO TRANSIT DEPENDENCY

Responses to questions assessing perceptions of access to various transportation modes and actual or psychological bondage to a particular mode produced several key findings.

1. Ten percent of all commuters believe they could easily use public transit for work and 11 percent would find such use only slightly inconvenient.
2. Many of those who use the automobile out of habit would be more receptive than average to a public transit alternative.
3. Other Orange County Transit District studies agree with this one on the percentage of persons using both automobile and public transit.
4. Only about 1 percent is unable to use public transportation because of physical disability, and accommodation of this group with such devices as elevator lifts and wheelchair restraints should be considered by the Orange County Transit District.
5. Those in lower income groups are more likely to be transit dependent than those in higher income groups.
6. The younger age groups are more receptive to public transit and more likely to use a car because of habit than because of perceived necessity.

7. Females are less likely to be automobile dependent and more receptive to public transportation than males.

8. Habitual car users include 22 percent who said that it would currently be impossible to commute by bus and 52 percent who could easily commute by bus.

9. Automobile users habitually drive the fewest kilometers per week; this suggests that psychological captivity decreases and real captivity increases as distance to work increases.

10. As the number of home-based trips per day increases, habitual automobile use increases.

11. Those who live and work in Orange County are more habit-bound to the car (59 percent) than those who live in Orange County but work in Los Angeles County (20 percent).

12. The greater the current use of the Orange County Transit District bus is, the less automobile-dependent the resident will be.

Full use of this survey information in an effective marketing program can segment the market and persuade many habitual automobile users to switch to public transit.

#### VEHICLE AVAILABILITY AND TRIP MARKET PROFILES

Unrestricted private transportation almost universally characterizes the people of Orange County as evidenced by a number of findings. In Orange County, 94 percent of the adults have drivers' licenses; 80 percent of the households have two or more frequent drivers; 97 percent of all households have one automobile, and 75 percent have two or more automobiles; and nearly 90 percent of the adults have a car available when needed.

Orange County residents enjoy perhaps unmatched car mobility, but endure congestion, pollution, and high-energy, intensive mode problems; therefore, public transit becomes an important alternative to consider.

The findings on high car mobility showed that (a) the more drivers per household there are, the greater the mobility of household members will be, as evidenced by trips per person per day (only 6 percent of one-driver households, but 18 percent of four-driver households, make four trips per day), and that (b) 14 percent of Orange County adults travel more than 563 km (350 miles) per week, or 80 km (50 miles) or more per day.

Major findings on commuter trip patterns indicated that

1. Of all commuters, 73 percent remain in Orange County, 23 percent drive to Los Angeles, and 4 percent work elsewhere;
2. The areas with the most commuters are, in descending order, Anaheim, South Bay, central Los Angeles, and Southeast Los Angeles County;
3. Nearly 50 percent of Buena Park's commuters, 25 percent of those in Garden Grove, and 7 percent of those in Santa Ana travel to Los Angeles County;
4. Of those who earn less than \$7,000 per year, 93 percent work in Orange County, but of those who earn \$25,000 or more, 61 percent work in Orange County and 33 percent in Los Angeles County; and
5. More than twice as many males (29 percent) as females (12 percent) commute to Los Angeles.

The survey showed that 70 percent of automobile commuters drive along 5 days or more each week, 16 percent drive 40 min or longer one way, fewer than 4 percent pay for any parking, more men (22 percent) than women (12 percent) are likely to work different hours, and more women (30 percent) than men (15 per-

cent) take care of personal business on the way home from work.

An active marketing program should increase the number of bus commuters. One transit-receptive group is lower income commuters who work in Orange County. Since women are more transit receptive than men, use the Orange County Transit District bus twice as often as men, and for noncommuting trips are much more likely to car pool than men, district persuasion to encourage use of rapid transit should give men priority. The Orange County Transit District marketing program, then, should be vitally concerned with the total modal mix and make the best use of private and public transportation modes in the county.

#### CONCEPTUAL AWARENESS AND ANTICIPATED USE

Orange County residents are fairly well aware of fixed-route and scheduled buses. Over two-thirds know of their neighborhood bus service. There is no difference in awareness of local service by sex or automobile availability, but the lower a resident's income is, the more aware he or she will be.

Three key elements for any bus system are fare, distance from the bus stop, and frequency of service. Among responses to unaided recall questions on these three factors, we found that

1. Respondents are more familiar with distance to the bus stop than with fare or service frequency (nearly 60 percent perceive the bus stop to be within three blocks of their residence);
2. A fare of 25 cents is generally given as the local, one-way fare, and nearly 50 percent of the respondents could indicate a cost; and
3. Only about 40 percent of those aware of bus service knew its frequency, and 75 percent of those indicated a frequency less than hourly.

The perceived closeness of local bus service indicates that the Orange County Transit District has done a reasonably good job of route planning. The Orange County Transit District might also persuade more residents of Orange County to commute by bus, since those working in Orange County are more aware of neighborhood bus service than those who commute to Los Angeles.

Several conditional choice combinations of cost, distance, and bus frequency were presented to respondents. When respondents were asked how many times out of 10 they would ride the bus for each scenario presented, we found that (a) at a 15-min interval and a fare of 25 to 35 cents, there is little difference between use at distances of one to three blocks, but use drops from 60 to 40 percent at a five-block distance; (b) 30-min interval use is uniformly lower at three to five blocks than at one block, regardless of cost; and (c) at the 60-min interval (fare of 25 to 35 cents), use at the one- and three-block distance is similar, but this drops markedly at the five-block distance. Thus, frequency and distance play an important part in predicting use and are also important in the convenience mix considered by potential transit users. Cost is also important, since anticipated use drops when the fare is 50 cents or more, regardless of bus stop distance or bus frequency. Alterations in current district fare policy are not the issue here, but the fare of 25 to 35 cents does seem to be the most palatable to respondents.

#### DIAL-A-RIDE

To assist planning, implementing, and expanding the innovative dial-a-ride system, we assessed the awareness

of and interest in the system and reasons for its use. Awareness of dial-a-ride was high, given its limited operation within the county. More than 60 percent of the respondents were aware of the concept.

Although awareness levels for conventional buses were higher for lower income groups, awareness of dial-a-ride was higher for higher income groups. Males and middle-aged persons were more likely to be aware of the concept than females or the youngest or oldest age groups. Anticipated use of dial-a-ride by city ranged from 80 to 35 percent; 7 percent of the respondents indicated anticipated use of dial-a-ride 5 days or more per week, 12 percent indicated 3 or 4 days, and 25 percent indicated 1 or 2 days.

Shopping (71 percent), recreation (47 percent), work (23 percent), church (23 percent), and school (10 percent) were the primary uses anticipated for dial-a-ride. Women would be more likely to use it for shopping, men for recreation or entertainment.

#### ANTICIPATED DEMAND FOR PUBLIC RAPID TRANSIT

Respondents were asked about their anticipated use of a public rapid transit system with a 130-km/h (80-mph) speed; 10-min service; one-way fare of 50 cents; distance from home or destination of 5, 10, 20, or 30 blocks, and door-to-door feeder. Men rather than women, those with higher incomes, and those who work in Los Angeles County are more likely to use such a system. It appears that a balanced modal mix of automobile, bus, dial-a-ride, and public rapid transit system can all serve specific submarkets within Orange County.

#### MARKETING AND ADVERTISING PUBLIC TRANSPORTATION

The findings of this survey can be used by the Orange County Transit District to assess the impact of its advertising in creating positive attitudes toward public transportation, making key target groups aware of Orange County Transit District services, and increasing the use of public transit in Orange County.

Any advertising program must be concerned with at least four items: level of public awareness, the media, content recall, and positive or negative impact of the message on the target groups.

#### ADVERTISING AWARENESS AND MEDIA ANALYSIS

Over two-thirds of respondents recalled Orange County Transit District advertising; most aware were men, the young, and those with highest incomes. Awareness of direct-mail advertising was greater for women but was similar for all income groups except the highest, for which it was lower. Men and the young are more aware of billboard advertising than women or the old, older age groups are more aware of newspaper advertising than those in the youngest age group, and men and the younger age groups are more aware of radio advertising than women or the older age groups.

Based on these survey findings, the following are recommended:

1. Since current nonusers (men and those with high incomes) are most likely to be aware of advertising, a change in emphasis in the marketing program is suggested to reach these subgroups.
2. Direct-mail advertising should continue because of its importance in influencing women to use public transit.

## MESSAGE CONTENT AND IMPACT OF ADVERTISING BY SELECTED MEDIA

The best recalled advertisements concern fares, routes, schedules, increased service, convenience, and conservation of petroleum resources, and those advertisements about convenience, service, and schedules have greater influence than other messages on persons switching to public transportation.

The high level of awareness of Orange County Transit District advertising (69 percent) indicates an effective advertising program, and making even more people aware of services should increase use. Women may be more influenced than men by advertising because they are more receptive to alternative transportation modes or a perceived level of captivity for certain periods of the day.

The effectiveness of direct-mail advertising in supplying schedule and route information suggests that more intensive study is needed to maximize the potential of this kind of advertising, which appears to be the single most effective medium for increasing bus ridership, especially among women. However, the Orange County Transit District should maintain a media mix to reach all target groups and, especially, maintain the personal and specific elements that increase receptivity to the message.

## CONCLUSIONS

This report highlights the findings of a base-line study to assist the Orange County Transit District in marketing public transportation now and in the future. A second survey is planned to permit longitudinal and trend surface analysis. A more detailed analysis of the data is warranted by the comprehensiveness of the study, but various departments within the Orange County Transit District will be assisted by this report in serving public mobility needs.