Comparison of Travel Behavior and Attitudes of Ridesharers, Solo Drivers, and the General Commuter Population

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Research related to factors influencing an individual's propensity to carpool or vanpool is briefly reviewed to provide background for the findings of a survey of the general commuting population of suburban Orange County, California. The findings are presented as they relate to three groups of commuters: ridesharers, solo drivers, and the general commuting population. Comparisons between the survey's findings and previous research are made. Among the key findings was that travel time was the most important mode selection factor for all three groups. Whereas the availability of a car at work was the second most important factor for commuters in general and solo drivers, ridesharers rated commuting costs as the second most important factor. Ridesharers were more likely than solo drivers to believe that high-occupancy vehicle (HOV) lanes encourage ridesharing, and there was more support among ridesharers than solo drivers for a sales tax increase to build HOV lanes. The general commuter survey results support the previous findings with regard to the role of travel time and distance in commute mode choice: ridesharers commute for longer times and distances than either solo drivers or the general commuting public. Support was also provided for the role of parking cost and availability. Comparisons were also made between the data base of matchlist applicants of the regional commute management agency and the general commuting population. The commute distances of commuters completing applications for ridesharing matchlists were more like those of current ridesharers than the general commuting public or solo drivers. Also, the proportion of matchlist applicants currently ridesharing was larger than that of the general commuting public.

Recent findings will be presented as they relate to three groups of commuters: ridesharers, solo drivers, and the overall commuting population. Comparisons will be made with previous findings where applicable. First, the most important factors influencing ridesharing behavior will be reviewed.

FACTORS INFLUENCING RIDESHARING BEHAVIOR

In attempting to determine the factors that influence an individual's propensity to carpool or vanpool, researches have examined sociodemographic and attitudinal differences between solo commuters and ridesharers. Though research findings vary with regard to generalizations that can be made about those who are most likely to rideshare, there is a consensus regarding those who are effectively barred from such travel arrangements (*1*). The following groups are unlikely prospects:

- Individuals working at small, isolated sites;
- Individuals with irregular hours or fluctuating schedules; and
- Individuals who use their cars during the day (e.g., salespeople).

Additionally, child care issues are a strong deterrent to ridesharing. Parents who need to leave children at child care facilities, or are concerned about their ability to react to emergency situations involving their children, are reluctant to rideshare (*2–5*).

There are factors, however, that have been associated with a greater propensity to rideshare. Of all the factors, travel time and distance have been the best predictors of ridesharing behavior.

Many studies indicate that a higher proportion of commuters rideshare as distance and travel time increase (*1,6,7*). Brunso et al. (*6*) found that the groups with the best potential for ridesharing were the "far-fast" group (i.e., those with commutes of more than 10 mi that took 40 min or less) and the "far-slow" group (i.e., those with commutes of more than 10 mi that took 40 min or more). Transportation Demand Management (TDM) Market Research Studies conducted by the Orange County Transit District (*3–5,8*) have also consistently shown that ridesharers have longer travel times and commute distances.

Automobile availability is another important factor influencing propensity to rideshare. On the basis of results from a nationwide survey, 40 percent of all carpoolers are from households with fewer vehicles than workers (*7*).

Peat, Marwick, Mitchell & Company (*9*) found that the parking situation at the workplace is also an important consideration. The characteristics (e.g., free parking for all employees) and availability of parking facilities at the workplace have a direct impact on mode choice (*10*).

Whereas commuters in general tend to underestimate commuting costs (*2*), individuals are three times more likely to rideshare when cost-to-income is greater than 5 percent (*7*).

Crain and Associates (*2*) found that opposition to carpooling was high in Santa Clara County, principally because of dependency on others or schedule imcompatibility. Whereas about 42 percent of the study's respondents believed that depending on others was not worth the money carpooling would save, higher proportions (55 to 58 percent) believed

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that achieving time savings in commuter lanes or fulfilling the requirement for pooling to obtain a guaranteed parking space at work would be worth depending on others or leaving work at a fixed time each day.

METHOD

The major source of data was a survey of commuters in Orange County, California, conducted in November 1988. The purpose of the survey was to gather information about travel behavior, attitudes toward alternative commute modes, and awareness of the commute management agency from the general commuting population.

A representative sample of all commuters in the region was obtained. Ridesharers were oversampled in order to obtain sufficient numbers for analysis. The data were subsequently weighted to achieve the appropriate influence on the aggregate findings. A total of 518 interviews were conducted between October 25 and November 17, 1988.

A second source was the data base of matchlist applicants of a regional commute management agency. Surveys are distributed to all employees of client companies in the region to generate computerized matchlists and to promote carpool and vanpool formation. The information obtained included name, address, phone number, work hours, present travel mode, and type of ridesharing arrangement desired. To provide comparability with the general commuter survey, the analysis used in this paper is based on the 92,513 applicants in the data base as of November 1988.

RESULTS

Travel Characteristics

As indicated in Table 1, applicants for ridesharing matchlists were more likely to use alternative commute modes than the general commuting population. These results are consistent with those obtained by Commuter Transportation Services in a similar comparison of the two groups in the Los Angeles area (*11*).

Both the average travel time and distance for ridesharers were longer than for solo drivers or the general commuting population (see Table 2). The table also indicates that the commuting distance for current ridesharers on the basis of the General Population Survey was almost identical to that of matchlist applicants.

When nonridesharers were asked the likelihood of joining a carpool or vanpool, 68 percent indicated that they were "not likely at all." Most would not be willing to try commuting by carpool (72 percent) or vanpool (78 percent) even for 1 day during the next 4 work weeks.

"Flexible work schedules" was the most commonly mentioned change commuters would make to achieve a more satisfying commute (17 percent). Ridesharing, moving closer to work, finding work closer to home, and getting a new car were each mentioned by about 5 percent of the commuters.

Of those commuters who had carpooled, vanpooled, or used transit within the past 3 years, the majority (51 percent) had done so for less than 1 year and about one-third (31 percent) had used a high-occupancy mode for 1 to 2 years. Most of those who quit did so because the company relocated (26 percent), whereas equal proportions (23 percent) either got a car or their carpool partner dropped out of the arrangement or changed jobs.

TABLE 1 TRAVEL MODE

	General Population (n= 520)	Matchlist Applicants (n=92528)
Drive Alone	89.6	82.6
Carpool	6.1	12.3
Vanpool	.1	1.0
Public Transit	1.3	1.7
Private bus	.1	--
Motorcycle	.7	.8
Bicycle/walk	1.6	--
Other	.5	1.5
	100	100

Attitudes

Travel time was the most important factor in deciding how to travel to work for the general commuting population (39 percent), as well as for ridesharers (39 percent) and solo drivers (30 percent). However, as indicated in Table 3, ridesharers

TABLE 2 COMPARISON OF TRAVEL PATTERNS FOR GENERAL COMMUTER POPULATION AND APPLICANTS FOR RIDESHARING MATCHLISTS

	General Population			
	All	Carpool/Vanpool	Drive Alone	Matchlist Applicants
Travel distance	11.5	13.8	11.2	13.7
Travel time				
-Home to Work	23.0	27.0	21.6	--
-Work to Home	27.2	31.4	25.8	--
Arrive at Work	6-7:30AM (33%)	A little earlier	A little later	--
	7:30-8:30AM (29%)	6:00-7:30 (39%)	After 7:30 (56%)	
Alternate Route When Traffic Backs Up	Very likely	Somewhat likely	Much more likely	--

differed from commuters in general and solo drivers in the second most frequently mentioned factor. For ridesharers, the second factor was commuting costs, whereas having a car available during work was the second factor for both general commuters (20 percent) and solo drivers (16 percent).

Other factors mentioned by commuters in general were not being dependent on others (11 percent), the amount and flow of traffic (9 percent), comfort and relaxation (7 percent), and safety concerns (6 percent). Less frequently mentioned were weather, road conditions, not having to take a freeway, commuting costs, and convenience.

As indicated in Table 3, there was more support for a proposal to increase the sales tax for high-occupancy vehicle (HOV) lanes among ridesharers (69 percent) than among solo drivers (53 percent). Ridesharers were also more likely to indicate that HOV lanes encourage ridesharing than those who drive alone.

Demographic Profile

As indicated in Table 4, ridesharers were more likely to be Hispanic, blue collar, and slightly less affluent than solo drivers. Ridesharers had also been at their present residence for a shorter period than solo drivers.

TABLE 3 COMPARISON OF TRAVEL BEHAVIOR ATTITUDES FOR RIDESHARERS, SOLO DRIVERS, AND THE GENERAL COMMUTING POPULATION

	General Population		
	All	Ridesharers	Solo Drivers
Commute Satisfaction*			
-Home-to-Work	5.8	5.7	5.7
-Work-to-Home	5.2	5.2	5.1
Mode Selection Factors	Travel time Car available at work	Travel time Commuting costs	Travel time Car available at work
HOV Lanes			
o Encourage ride-sharing	Yes-slightly	Yes-Overwhelmingly	No-slightly
o Support 1/2 cent sales tax for HOV lanes	55% support	64% support	50%/50%
Freeway			
o Gax tax for freeway improvement	56% against	50%/50%	More against than for

* On a scale of 1-9, with "1" being least satisfactory and "9" being most satisfactory.

TABLE 4 DEMOGRAPHIC PROFILE OF RIDESHARERS AND SOLO DRIVERS

	General Commuter Population	
	Ridesharers	Solo drivers
Gender	Male 52% Female 48%	Male 54% Female 46%
Age	No age differences	No age differences
Income	$50,000 or less	$65,000 or less
Ethnicity	Hispanic (25%)	Predominately white
Jobs	More likely blue collar	More likely white collar
Length of residence	Less than 5 yrs.	Nearly evenly split < & > 5 yrs.
Vehicles / household	More likely to own/lease 2 or less	More likely to own/lease 2 or more

CONCLUSIONS

The findings presented in this paper are consistent with past research with respect to travel time and distance. Ridesharers commute for longer distances and times than solo drivers. They are also likely to have fewer vehicles per household than solo drivers.

Previous research has indicated a correlation between automobile availability and ridesharing. The results from the general commuter survey were consistent with these findings. However, the number of vehicles per household is confounded with income (i.e., the number of vehicles per household is correlated with income).

The previous findings concerning the effects of parking costs and availability on mode choice are also supported by these results. The low ridesharing rate (7.5 percent, including transit, carpool, and vanpool) is consistent with the abundance of free parking found in the survey (e.g., only 6 percent of commuters surveyed indicated that they paid for parking).

Previous studies of carpool duration have suggested that those who are currently carpooling remain in that arrangement 2½ years (31 months) on the average, and those who had previously carpooled did so for 2¼ years (*11–13*). However, the findings of the survey reported in this paper indicate that such arrangements may be less stable (i.e., more than 80 percent of those surveyed indicated that the arrangement had lasted 2 years or less).

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