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Publication of this paper sponsored by Committee on Transportation for the Transportation Disadvantaged.

Analysis of Commuter Ridesharing Behavior at Five Urban Sites

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ABSTRACT

This paper is based on an evaluation of the National Ridesharing Demonstration Program (NRDP) established by the Department of Transportation in 1979 as a 2-year effort to develop comprehensive and innovative approaches to ridesharing. The findings presented are based on results of a workplace survey administered at five NRDP sites: Atlanta, Georgia; Cincinnati, Ohio; Houston, Texas; Portland, Oregon; and Seattle, Washington. The focus is on the characteristics of ridesharers, the workings of carpool arrangements, the relationship between firms and ridesharing, and the impact of ridesharing programs. Survey results showed that ridesharers were more likely than other commuters to have a long journey to work and to have more than zero and less than one automobile per employed worker in their households. An overwhelming majority of carpools were formed by household members or by informal work contact. Most carpools were two-person arrangements, more than half of which consisted of persons from the same household. Fifty-eight percent of those ridesharing 2 years before the survey were still ridesharing at the time of the demonstration, and about the same proportion of persons ridesharing at the time of the survey had been ridesharers 2 years earlier. Most of the movement into and out of carpools was from the drive-alone mode. Ridesharing mode split and carpool size were both positively associated with firm size. Large firms were more apt to provide ridesharing assistance to their employees, and assistance was associated with a higher ridesharing mode split. No association was found between flextime and the amount of ridesharing. Firm contact with a ridesharing program was associated with increased employee ridesharing at firms offering ridesharing assistance. Implications for ridesharing program design are briefly explored.

The market for ridesharing, both in terms of individual ridesharers and in terms of employers who are potential participants in ridesharing programs, is described. [Ridesharing is defined as motor vehicle travel in which the driver is accompanied by at least one passenger, the driving function is uncompensated or compensated in only minimal fashion, and the vehicle is owned or leased by an individual for his personal use or by an institution for the use of its employees (1,p.4). "Ridesharing" and "carpooling" are used interchangeably in the text because of survey definitions. Vanpooling is considered a subset of carpooling involving seven or more passengers.] The discussion of ridesharing arrangements and participants relies mainly on analysis of data from uniform workplace surveys of employers and employees administered in 1982 at five National Ridesharing Demonstration Program (NRDP) sites: Atlanta, Cincinnati, Houston, Portland, and Seattle. The NRDP surveys generated usable responses from more than 200 firms and 2,000 employees at each of the five sites.

Responses from the employer survey were merged with those from the employee survey for analysis of

individual ridesharing behavior. The merged data set not only describes employee characteristics but also connects them with an employee's work environment. Sample sizes for the subset of ridesharing employees whose characteristics were examined in detail ranged from 348 in Cincinnati to 462 in Houston. Responses were weighted to correct both for the effects of stratification (i.e., sampling different population segments at different rates) and for the effects of differential response rates among population segments.

The measures of association used for the analysis were a chi-square test applied to two- and three-way cross-tabulations of data and a difference of proportions test applied to particular data cells in the cross-tabulated data. The principal findings refer to associations between independent variables that were found to be significant at the 95 percent level or higher.

EMPLOYEE RIDESHARING

Ridesharing Commute Mode Choice

The workplace survey asked respondents to identify their primary current (1982) means of transportation to work as well as the mode they used 2 years before the survey. Results of the survey questions showed no significant change in the mode split for commuters from 1980 to 1982, as the data in Table 1 indicate. The level of employee ridesharing in 1980 was similar at most of the five sites to the national average for ridesharing to work that year, 19.7 percent (2,p.18). An exception was Houston, which had the highest ridesharing mode split, 26 percent. This disparity is probably explained by the relatively thin public transit service density and the dramatic increase in population and employment in Houston during recent years.

Factors Associated with Ridesharing

Sociodemographic, motivational, and employment characteristics of ridesharers were examined by cross-tabulating responses to the employee workplace survey at five sites. Some of the results confirm previous findings, whereas others are at variance with earlier ridesharing research. Results of the survey analysis confirm studies such as that by Bonsall, Spencer, and Tang (3,pp.20-22), which show a relationship between sex and propensity to rideshare. At all five sites the ridesharing mode split was higher for women workers than for men. On the other hand, survey results showed no consistent relationship between age and propensity to rideshare, a finding at odds with other research suggesting that ridesharers are disproportionately represented within certain age groups.

Evidence associating income with ridesharing was less clear-cut. At all sites except Portland, employees with (1982) household incomes below $15,000 were more likely to rideshare than employees in most other income groups. In Portland, workers in this lowest income bracket were least likely to carpool. It was hypothesized that automobile ownership may be a better variable than income to explain mode choice.

Results of the workplace survey showed a correlation between ridesharing and car ownership patterns. As the data in Table 2 indicate, ridesharing employees at all sites were more likely than the average employee to have more than zero and less than one car in their household. At the same time, ridesharing employees were less likely than the average employee to have two or more automobiles per employed household member. This is logical for several reasons. First, as will be discussed later, most ridesharers drive some of the time, which necessitates at least partial access to a car. Second, as will also be seen, a large proportion of carpools involves two family members commuting together, which would require household access to a car. Finally, the availability of two or more cars per employed household member eliminates much of the need to carpool.

Many studies have suggested that cost savings are more important for ridesharers than for other commuters. Responses to the workplace survey question asking riders to give the reasons for their choice of mode confirmed this finding. Ridesharers mentioned cost as the most important consideration more often than all commuters did--25 versus 15 percent of the time. However, ridesharers were also motivated by considerations similar to those of other commuters; namely, convenience, travel time, schedule requirements, and unavailability of transit, as Weisbrod and Eder (4,p.11-4) have noted.

Among the job-related factors shown by the workplace survey to be associated with employee propensity to rideshare were firm size, distance to work, full- versus part-time work, and work schedule. Survey results showed firm size to be highly correlated with employee ridesharing behavior. For all sites the ridesharing mode split was higher at firms with more than 100 employees than it was at smaller firms, as shown in Figure 1. This finding is consistent with earlier research and also with recent work such as that done by Wiley-Jones et al. in

TABLE 1 1980 and 1982 Commute Mode Split (%)[a]

	Atlanta	Cincinnati	Houston	Portland	Seattle	Five-Site Average
1980						
Ridesharing	19	20	26	21	17	21
Single-occupant automobile	72	68	61	61	58	64
Public transit[b]	8	10	11	13	20	12
Other[c]	2	3	1	5	5	3
Total	100	100	100	100	100	100
1982						
Ridesharing	19	20	28	19	16	20
Single-occupant automobile	72	70	63	63	60	66
Public transit[b]	7	8	8	14	21	12
Other[c]	2	2	1	4	3	2
Total	100	100	100	100	100	100

[a] From NRDP workplace survey.
[b] Includes subscription bus.
[c] Includes walk, cycle, taxi, and "other" responses.

TABLE 2 Distribution of Automobiles per Employed Household Member for Ridesharing (RS) Employees and All Employees (%)[a]

No. of Automobiles	Atlanta		Cincinnati		Houston		Portland		Seattle		Five-Site Average	
	RS	All	RS	All	RS	All	RS	All	RS	All	RS	All
None	5	5	3	3	5	3	0	3	1	3	3	3
0.01-0.99	13	8	25	16	27	16	25	18	25	17	23	15
1	51	47	49	54	53	59	59	55	48	50	52	53
1.01-1.99	21	20	13	11	5	8	6	7	13	12	11	12
2	8	15	8	12	9	13	9	14	11	14	9	14
>2	2	5	2	3	1	1	2	2	2	4	2	3
Total	100	100	100	100	100	100	100	100	100	100	100	100

[a]From NRDP workplace survey.

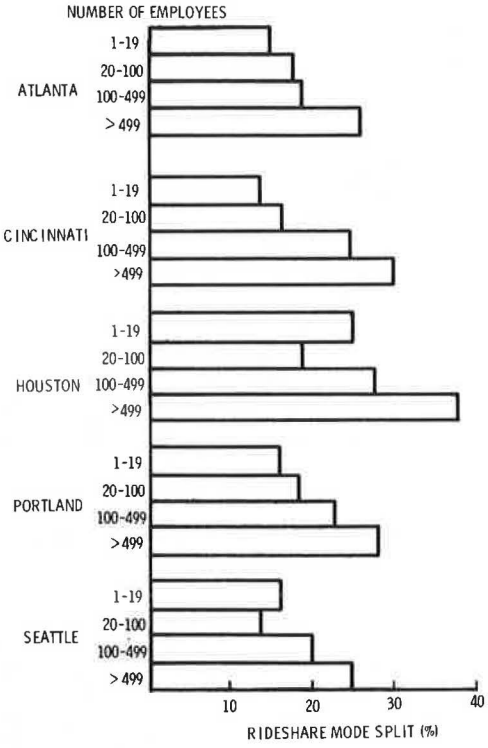

FIGURE 1 1982 employee rideshare mode split by firm size category.

Wisconsin (5,p.IV-6). The positive association between firm size and level of ridesharing can be explained at least partly by firm size alone. The larger the firm, the greater the number and density of potential poolers at one location and thus the greater a worker's chances of being exposed to ridesharing requests and of finding a suitable co-rider.

Mean distance to work at the five sites was 12.0 miles, ranging from under 10 miles to more than 14 miles (Table 3). Ridesharing was found to be a more likely mode choice as distance to work increased. Mean distance to work was significantly higher for ridesharing employees than for those who drove alone at all five sites, and significantly higher than for bus users at all sites except Houston. The research of Brunso and Hartgen (6); Kulp, Tsao, and Webber (7,p.86); Heaton et al. (8); and others has also related ridesharing to increased distance to work. The higher cost of individual automobile trips over longer distances and the decreased availability of public transit presumably make ridesharing more attractive for longer journeys to work.

Full-time workers at all sites were more likely than part-timers to rideshare, a finding consistent with the positive association also found between fixed work hours and propensity to rideshare. At all sites, survey results showed no significant differences in ridesharing mode split for employees on fixed-hour schedules versus those who set their own schedules, which are thereafter fixed (Table 4). Compared with those on fixed-hour schedules, however, employees with flexible-start schedules presented a mixed picture. (Flexible-start schedules were understood to mean those requiring a fixed number of work hours per day but allowing the worker to choose a start time, usually from within a range of hours.) On the basis of this finding, the introduction of flexible work hours (i.e., employee-set fixed schedule or flexible start) could not be associated with increased or decreased ridesharing.

To see whether there was a difference in carpool formation patterns between carpoolers working fixed hours and those with some flexibility in their schedules, carpooler responses to the question of how they formed their carpool were cross-tabulated with responses to a question about type of work schedule. Carpools formed with household members or through informal work contact accounted for 82 percent of all carpoolers at the five sites. At four of the five sites, carpoolers with some flexibility in

TABLE 3 Average Employee Commute Distance by Mode (miles)[a]

	Atlanta	Cincinnati	Houston	Portland	Seattle	Five-Site Average
Ridesharing	18.2	12.8	15.6	13.0	14.3	14.8
Single-occupant automobile	12.4	10.9	13.5	9.5	10.9	11.4
Public transit[b]	12.8	9.2	15.4	8.7	11.8	11.6
Other[c]	2.6	1.3	8.5	1.8	9.8	4.8
All modes	13.3	11.0	14.2	9.8	11.7	12.0

[a]From NRDP workplace survey.
[b]Includes subscription bus.
[c]Includes walk, cycle, taxi, ferry, and "other" responses.

TABLE 4 1982 Employee Ridesharing Mode Split by Type of Work Schedule (%)[a]

Schedule Type	Atlanta	Cincinnati	Houston	Portland	Seattle	Five-Site Average
Fixed hours	21	20	31	20	19	22
Employee-set fixed schedule[b]	23	18	29	24	19	23
Flexible start[c]	14	26	22	22	11	19
Rotating shift	13	13	24	10	8	14
Irregular	7	13	12	11	6	10
All schedule types	19	20	28	19	16	20

[a] From NRDP workplace survey.
[b] Employee selects work schedule that is thereafter fixed.
[c] Employee can vary start time each day.

work hours were more likely than carpoolers on fixed schedules to have formed their carpools with household members. A significantly lower percentage of the flexible-schedule carpoolers had formed their carpools through informal work contact. At the fifth site, Cincinnati, no statistically significant difference in carpool formation patterns between those on fixed schedules and those with some flexibility in schedules could be observed.

These results suggest that flexible working hours facilitate carpool formation among family members. This same flexibility hinders carpool formation through informal work contact because it encourages schedule diversity among employees. Carrying this hypothesis further, the increase in carpooling among household members working flexible hours may tend to cancel out the decrease in carpooling through informal work contact in the same flexible work hour environment. This would confirm the previous observation that flexible working hours have little net effect on rideshare mode split.

Earlier research on the relationship between ridesharing and flextime is mixed, with Kulp et al. (7,p.86) showing a positive association between ridesharing and regular hours and other studies suggesting that the relationship is more ambiguous. It is possible that flextime may have positive or negative effects on ridesharing, depending on whether it is promoted as part of a more comprehensive ridesharing program.

Carpool Arrangements

Analysis of survey questions about carpool size and composition at most sites showed more than half of all carpoolers to be in two-person carpools, as shown in Figure 2. A high proportion of the members of two-person carpools lived in the same household, which is not surprising because of the ease of making and changing arrangements and the absence of circuity at the home end. Between 47 and 61 percent of those ridesharing in two-person carpools shared the ride with a family member. In contrast, fewer than one-third of the members of three- or four-person carpools shared the ride with one or more family members.

The proportion of carpoolers in carpools whose members all worked for the same employer was found to increase with carpool size at most sites. Although women were more likely than men to carpool, as already seen, men were more likely to drive in a carpool than women. On average, 37 percent of men and 21 percent of women employees always served as the driver of their carpool and 51 percent of men and 59 percent of women sometimes served as the driver. These findings are consistent with other research (3).

Although the workplace survey did not distinguish between kinds of carpools on the basis of size,

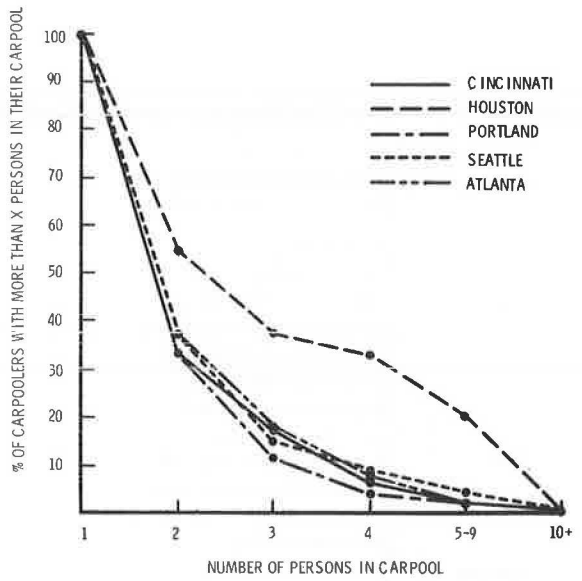

FIGURE 2 Cumulative distribution of carpoolers by carpool size.

carpools with seven or more members were here termed "vanpools" and described separately because results indicated that they were distinctly different from smaller carpools. Survey responses related to carpool formation patterns showed that the overwhelming majority of ridesharing arrangements resulted from informal contact at work or from household members' deciding to commute together, as discussed previously. However, the method of formation varied by carpool size, with the largest and smallest carpools demonstrating quite different formation characteristics, as the data in Table 5 indicate. Most two-person carpools were formed by household members, whereas most carpools with seven or more persons were formed at work. Formal mechanisms such as company newsletters and matching lists were used more widely by members of the largest carpools than by those in the smallest ones.

Evidence on the dynamics of ridesharing arrangements was obtained by comparing responses to retrospective questions in the workplace survey asking respondents to identify their primary mode of travel to work 2 years previously with responses to questions about current mode choice. The relative duration and stability of ridesharing and other modal commuting patterns were remarkably similar across the five sites. The responses showed a considerable amount of movement into and out of carpools and other modes over time, as shown in Figure 3. The amount of movement varied by mode. For example, of those who were driving alone to work 2 years before

TABLE 5 Percentage Distribution of Carpoolers by Method of Carpool Formation for Selected Size Car- or Vanpools (five-site average)[a]

How Formed	Carpool Size		
	All	>6	2
Household	38	4	53
Neighborhood	7	1	7
Informal work contact	44	43	38
Firm newsletter	4	28	1
Firm matching	4	12	0
Rideshare program	2	6	0
Newspaper advertisement	0	6	0
Other	1	1	1
Total	100	100	100

Note: Results rounded to nearest percent; values less than 0.5 percent listed as zero.

[a]From NRDP workplace survey.

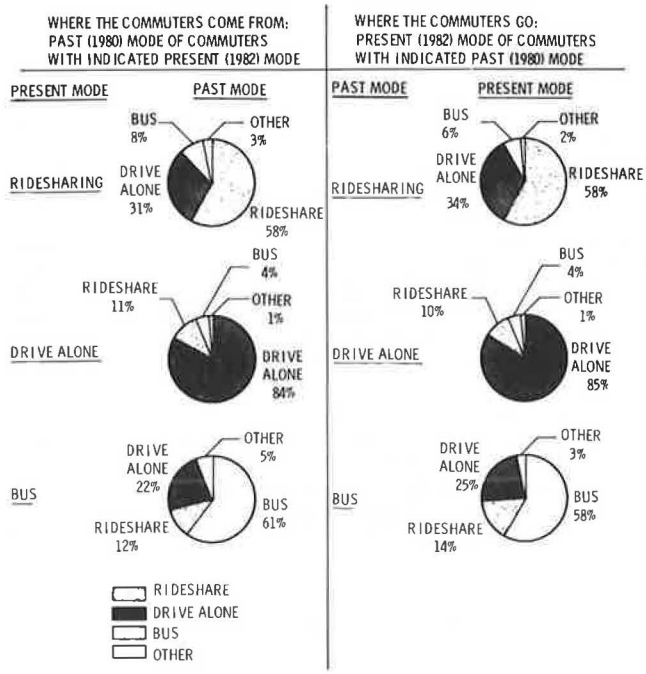

FIGURE 3 Movement into and out of modes during a 2-year period (five-site average).

the survey (1980), 85 percent were still driving alone at the time of the survey. In contrast, the percentage of employees carpooling 2 years earlier who were still carpooling in 1982 was much lower, 58 percent. The retention rate of transit riders was similar to that of carpoolers: 58 percent of those who were taking transit 2 years earlier were transit riders at the time of the survey. Some commuters in all three groups may have switched modes more than once during the 2-year period, but this does not affect the overall conclusions.

Responses to the same set of questions provided evidence about the source of entrants to all three major transportation modes. More than 70 percent of new carpoolers (i.e., those carpooling in 1982 who were not carpooling in 1980) formerly drove alone, and nearly 20 percent formerly used transit. The remaining new carpoolers included those who formerly walked, worked at home, or took other modes. The mode-switching process works in several directions, of course. About 65 percent of those new to the drive-alone mode were ridesharing 2 years ago, and 24 percent on average were former transit users. Because the drive-alone mode is so large (approximately 60 percent of all commuters at any one site), even a small increase in the percentage of newcomers to this mode can represent a substantial drain on ridesharing and transit mode shares.

EMPLOYER INVOLVEMENT IN EMPLOYEE RIDESHARING

Characteristics of Surveyed Firms

Survey results yielded a profile of firms in five metropolitan areas by size, type of business, type of schedule, parking availability, and length of time at current location. Most of the firms at each of the five sites were small enterprises. More than 80 percent of the firms had fewer than 20 employees, and more than 95 percent of them had fewer than 100 employees. At the same time, larger firms accounted for more than one-third of the employees at each site. A substantial majority of firm employees (70 percent) at the five sites had fixed work hours. On average, 9 percent of employees were able to set their schedule, which was thereafter fixed, and another 8 percent were allowed to vary their start time provided they worked the same number of hours each day. The rest worked rotating shifts or had irregular hours.

Free (non-employer-provided) parking was available within a quarter mile of the work site at most firms. About three-quarters of all employers provided parking (usually free) for their employees. At sites where parking was not available, with the exception of Seattle, most firms furnished employee parking.

Transportation Assistance

The proportion of firms offering transportation assistance of any sort to employees was examined to determine whether there was a relationship between employee mode split and the amount and kind of assistance offered. It was found that, on average, more than half of the firms did not offer any transportation assistance to their employees. The proportion of firms offering assistance ranged from 28 percent in Houston to 50 percent in Seattle. Of those offering transportation assistance, fewer than one-third offered ridesharing assistance, defined here as carpool formation assistance, ridesharing incentives such as preferred parking, and vanpool transportation. At every site a large majority of employers offering ridesharing assistance stated that the benefits of employer-sponsored ridesharing outweighed the cost. At the same time, for all sites except Houston, employers not providing ridesharing assistance were much less likely to view such assistance as beneficial.

Ridesharing assistance was correlated with firm size (Table 6). At large firms employees were more likely to rideshare, carpools were apt to be larger, and employees were more likely to use firm assistance in forming carpools. Because the firms that offered ridesharing assistance were large, the aid they offered could reach a large number of employees.

The employee ridesharing mode split at those firms offering "active" ridesharing assistance (defined as help in joining or forming a carpool, such as matching services) was higher than at other firms, as might be anticipated. This can be seen

TABLE 6 Proportion of Larger and Smaller Firms Offering Ridesharing Assistance (%)[a]

	Atlanta	Cincinnati	Houston	Portland	Seattle	Five-Site Average
Larger[b] firms	21	32	38	38	55	37
Smaller[b] firms	1	2	2	5	10	4
All firms	1	3	3	6	11	5

[a] From NRDP workplace survey.
[b] Larger firms have 100 or more employees, smaller firms fewer than 100 employees.

from the data in Table 7, although the direction of causality cannot be determined from these statistics alone. An active ridesharing assistance program may well induce some employees to rideshare; on the other hand, such a program may be the result of employee demands. Because larger firms offered assistance more often than smaller ones, the ridesharing mode split was examined for employees of firms in all four size categories to see whether firm size alone explained the higher rideshare mode split; it did not.

Area Ridesharing Programs

Area ridesharing programs were active in each of the five sites at the time of the workplace surveys. An important focus of the surveys was on examining the impacts of these programs on employee ridesharing. These impacts were evaluated in two ways: (a) by comparing rideshare mode split at firms having "contact" with an area ridesharing program with the mode split at firms not having such contact and (b) by examining employees' perceptions of the impacts of the programs. Contact with a ridesharing program included both contact of employers by the ridesharing program as well as successful attempts by firms to receive ridesharing information or aid, or both, from the ridesharing program. In other words, "contact" could work in either direction.

For those firms that were in contact with a local ridesharing program, the percentage of employees ridesharing was significantly higher at all sites than it was for those firms that were not in contact, as the data in Table 8 indicate. As with firm ridesharing assistance, however, the direction of causality cannot be deduced from these statistics alone. That is, it cannot be definitely concluded that contact increased ridesharing, because the programs may have tended to contact firms that already offered ridesharing assistance. Although the survey results showed that assistance was much more likely to be found at contacted firms, there is no way to tell, on the basis of the survey, whether assistance or contact came first.

To see whether firm assistance explained the effect of program contact on ridesharing behavior, the population of employees was subdivided by whether the firm offered ridesharing assistance. For each subgroup the ridesharing mode split at firms contacted was compared with the mode split at firms not contacted. Results, given in Table 9, were mixed. For firms that offered ridesharing assistance, contact was associated with a significantly higher mode split at three sites--Atlanta, Houston, and Seattle. Little difference was seen in the ridesharing mode split of employees at contacted versus noncontacted firms that did not offer ridesharing assistance, except in Portland where a higher rideshare mode split was associated with contacted firms.

It was hypothesized that firm size, which was associated with more firm contact, might account for the higher ridesharing mode split at contacted firms. Further analysis showed that this was generally not the case. Mode split was usually higher for contacted firms offering assistance, regardless of

TABLE 7 Employee Ridesharing Mode Split at Firms Offering Various Types of Transportation Assistance (%)[a]

	Atlanta	Cincinnati	Houston	Portland	Seattle	Five-Site Average
No assistance	18	16	24	14	13	17
Non-RS[b] assistance	16	19	22	22	16	19
Active RS assistance	27	35	36	27	22	29
Passive RS assistance	27	30	NA	21	19	24
All firms	19	20	26	21	17	21

Note: Values less than 0.5 percent are listed as zero.

[a] From NRDP workplace survey.
[b] RS refers to ridesharing. Non-ridesharing assistance includes other forms of transportation assistance, such as transit pass sales or subsidies. Active and passive ridesharing assistance were defined as help in joining or forming a carpool, with the two categories differing only by degree. For example, active assistance involves provision of vans, special incentives, in-house matching services, and employee get-togethers; passive assistance involves distribution of ridesharing brochures, display of posters, and general encouragement of ridesharing by management.

TABLE 8 Employee Ridesharing Mode Split by Firm Contact with Rideshare Program (%)[a]

	Atlanta	Cincinnati	Houston	Portland	Seattle	Five-Site Average
Firms with contact	24	26	36	25	21	26
Firms without contact	17	18	24	17	14	18
All firms	19	20	28	19	16	20

[a] From NRDP workplace survey.

TABLE 9 Employee Ridesharing Mode Split by Firm Contact with Rideshare Program at Firms That Do and Do Not Offer Active Ridesharing Assistance (%)[a]

	Atlanta	Cincinnati	Houston	Portland	Seattle	Five-Site Average
Firms that offer active ridesharing assistance						
Firm contact	31	33	38	29	26	31
No firm contact	18	38	28	25	13	24
Firms that do not offer active ridesharing assistance						
Firm contact	19	16	23	21	14	19
No firm contact	17	18	24	16	14	18

[a] From NRDP workplace survey.

size. Again, the results presented here do not prove causal relationships between program contact and ridesharing. On the one hand, contact with the ridesharing program may enhance the effect of a firm's ongoing ridesharing efforts. On the other hand, area ridesharing programs may simply have contacted firms whose ongoing rideshare assistance programs were most successful.

The effect of area ridesharing programs was also assessed from the point of view of their relative usefulness to employees. The vast majority of employees at all five sites received no assistance at all from the ridesharing program, as the data in Table 10 indicate. An additional group received aid but did not use it, for whatever reason. Only about 1 percent stated that they were helped to form or join a carpool by the ridesharing program. When the question was limited to current ridesharing employees, about 3 percent had found the ridesharing program of direct help. These figures are consistent with those in Table 5 where, on average, 2 percent of carpoolers indicated that they joined or formed their carpool as a result of the area ridesharing program. However, the figures likely represent a lower bound on rideshare program impacts. Assistance to employees was often channeled through employers because many ridesharing programs consciously strove to transfer responsibility for such assistance to the firms. Such policies in turn could mean that employees perceived rideshare marketing efforts as coming from their firms, instead of from the area ridesharing programs that had initiated the assistance.

CONCLUSIONS

Results of the NRDP study hold a number of implications for the design and focus of rideshare programs. Most of the findings suggest that persons living relatively long distances from work are more likely candidates for ridesharing than are other commuters, all else being equal. Both firm-specific and areawide rideshare programs should continue to emphasize cost savings from ridesharing, because they are an important factor in a commuter's decision to rideshare. Other factors that should be emphasized are convenience and time savings, where applicable.

Most employees at firms offering ridesharing assistance worked for large firms, where employees were more likely to rideshare, to form larger carpools, and to use formal mechanisms for forming carpools. Thus, given an areawide rideshare program, it is reasonable to focus on large firms. It is also possible that multiemployer work sites may function like large firms; that is, they may provide opportunities for ridesharing development, but this hypothesis could not be tested with NRDP data. Firms already offering ridesharing assistance should not be ignored because contact with the rideshare program may enhance a firm's own efforts.

Although ridesharing programs had contacted firms employing about half of the employees in a region, on average, fewer than 20 percent of all employees in a region had actually received program materials. Even at contacted firms, fewer than one-third of the employees received such materials, which suggests that rideshare programs might try more intensive follow-up efforts. On the other hand, more than 60 percent of carpoolers (five-site average) were in two-person carpools, and more than 50 percent of two-person carpooling (five-site average) was done by family members. The likelihood that a substantial portion of carpooling arrangements will continue to be made at home, and not by rideshare assistance at the work place, limits the potential market for ridesharing development through employers.

The impact of both areawide and firm-specific ridesharing programs on commuter travel behavior cannot be conclusively determined from NRDP data. It is important to remember, however, that such an impact is likely to affect a small percentage of the overall commuter market. On average, 2 or 3 percent of those carpooling at the time of the survey credited their local ridesharing program directly with helping them to rideshare. About 8 percent of carpoolers stated that their firm's matching program

TABLE 10 Distribution of All Area Employees by Receipt and Use of Material from Rideshare Program (%)[a]

	Atlanta	Cincinnati	Houston	Portland	Seattle	Five-Site Average
Material helped in carpooling	0.5	1.2	1.2	0.4	1.2	0.9
Material not used or unsuccessful	6.6	16.3	14.6	8.9	16.3	12.5
No material received	92.9	82.5	84.2	90.7	82.5	86.6
Total	100.0	100.0	100.0	100.0	100.0	100.0

[a] From NRDP workplace survey.

or newsletter was their primary reason for joining or forming a carpool. Some of this ridesharing assistance by firms could have been the result of area ridesharing program efforts channeled through employers. Other indirect effects of ridesharing programs on mode split may be considerable but could not be measured. The actual number of persons assisted varied, of course, depending on the size of the local commuter market. It is clear that a rideshare marketing program should expect to be an ongoing effort because nearly half of the ridesharing commuters surveyed were found to revert to other modes during a 2-year period.

ACKNOWLEDGMENTS

This paper is based on an evaluation of the National Ridesharing Demonstration Program. The program was jointly sponsored by FHWA, UMTA, and the Office of the Secretary of Transportation (OST), with FHWA taking the lead administrative role. The authors would like to acknowledge the advice and assistance of James Bautz of UMTA, Robert Redmond of FHWA, Nancy Ebersole of OST, as well as of Larry Doxsey and Bruce Spear of the Transportation Systems Center in the preparation of this study.

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The views expressed in this paper are not necessarily those of the U.S. Department of Transportation.

Publication of this paper sponsored by Committee on Ridesharing.