Relations Board regulation of wages, hours, and working conditions?

7. Is ridesharing a fringe benefit? Should it be? Is it taxable income?

8. Is there a point at which it is no longer the employee's responsibility to get to work but management's?

9. Where an employer's support for vanpooling may include employees from another organization, what are the multiple-employer implications of such an arrangement? Are these concerns, if any, minimized by having a public or nonprofit organization administer the program?

10. Does the ridesharing decision process change depending on the size of the organization? If so, how?

11. Are ridesharing programs cost-effective in terms of budget, ridership, longevity, and should this be the sole rationale for success?

12. What makes a successful carpool? vanpool? subscription bus service? Is it neighbors riding together? Is it being employed by a common employer? Is it the practices and incentives that the employer provides?

13. Why are some pools more successful than others? Why have some informal pools lasted more than 20 years? Why, after a crisis and ridesharing promotion, does there seem to be a decline in ridesharing participation? Once there is some promotional activity, either before or after a crisis, which of the forms of ridesharing has the most permanent effect--carpooling, vanpooling, or subscription buses? Is ridesharing success dependent on matching techniques, such as person-to-person, using a coordinator, providing a listing and having employees make their own contacts, or providing incentives?

14. What is the most successful technique to measure ridesharing success at company work sites and how does that show the effectiveness of a ridesharing system?

Ridesharing Evaluation

Lawrence Jesse Glazer

For most ridesharing agencies (RSAs), evaluation is an afterthought. Most RSAs are established in response to a clearly perceived problem (e.g., a gasoline shortage), and ridesharing is an "obvious" solution. This solution is so obvious that expectations are often wildly optimistic and program evaluation seems unnecessary. Only after the RSA has been in operation for a year or more, and it is seen that the optimistic initial goals will not be met, does evaluation become relevant.

While the roots of organized, large-scale ridesharing promotion can be traced back to World War II, little can be learned from experiences of that era because those efforts were viewed as emergency measures. Consequently, little evaluative work was done at that time.

The oil embargo of 1973-1974 was the primary impetus for the current round of ridesharing efforts, although a few programs were started before the embargo. Many large urban areas and a few small urban areas across the country initiated an areawide ridesharing program (then called carpool programs), and many of these programs persist today. Thus, while some of the programs have undergone substantial changes, most large urban areas have had an areawide ridesharing program in place since the mid-1970s. We will refer to these as the "old-guard" RSAs. The late 1970s, especially 1979, saw the establishment of a "new wave" of RSAs. This new wave is made up largely of RSAs located in small urban or rural areas. The gasoline shortage of 1979 was a contributing factor, but probably a larger impetus to the formation of these new RSAs was the recognition that the energy shortage and its adverse economic impacts represent a real and long-term phenomenon.

Since there were no precedents, many of the old-guard RSAs were created with wildly optimistic goals; for example, "place 25 percent of all commuters into carpools". Although subsequent market research has found that a more realistic first-year goal might be 1 percent or less, most new-wave RSAs do not seem to have access to these research findings, so they too are usually saddled with unrealistic expectations. In most cases, these goals are not explicitly stated, so each player on the local scene carries around a notion of what this goal should be. This lack of a common set of expectations eventually leads to disagreements, because nobody has defined "success" at the outset.

These approaching problems are usually not seen by the new RSA, whose major concern is to get organized and produce some visible results quickly. Whether old-guard or new-wave, the development process of an RSA is similar. It starts with one or several people and then grows in size as required. Most old-guard RSA staffs now number from 8 to 20 people, while most new-wave RSAs will never grow beyond their initial size of one or two persons.

While RSA staffs are new and small, there is often not much specialization of function and rarely will a new RSA explicitly assign one person the responsibility for evaluation work. Compounding the problem, the new-wave staff is coming from increasingly diverse backgrounds (e.g., teaching, sales, administration, etc.), as opposed to the original old-guard staff, most of whom came from transportation planning or engineering backgrounds. These new people generally lack the analytical training and experience needed to foresee and manage the evaluation requirements.

For this variety of reasons, evaluation needs are generally ignored during the first year or so of operation. Evaluation and reporting procedures during the first year generally amount to tracking the growth of the data base. But then the honeymoon abruptly ends, and critics (or supporters) begin to ask, Where are these miracles we have been expecting?, Why has there been no noticeable change in our transportation problems? Such questions will usually be asked by funders during budget-preparation time. This gives rise to the first real evaluation effort at that RSA. The objective of this effort will be to measure past performance in a way that justifies continued funding.

Since the funders do not know much about ride-sharing, they will usually leave the evaluation work to the RSA, which chooses the measures of success and the evaluation methodology. Given the varying backgrounds and capabilities of the RSA staffs, these evaluation studies are performed, but often not very well. Certainly, they are not performed with uniformity, as individual RSAs across the country have chosen widely differing measures of success and have used a variety of evaluation methodologies. Like other aspects of ridesharing, it seems that a full appreciation of the complexities of ridesharing evaluation does not develop until after the first evaluation study is performed, if then.

The old-guard RSAs who have gone through several evaluation cycles have learned from their initial mistakes, and the quality of their work is significantly better than that of the newer RSAs. But systematic deficiencies still exist. (These are discussed later.) One major and consistent deficiency is the use of evaluation for purely historical purposes, that is, to measure what has been done in the past. Largely ignored is formative evaluation, whose purpose is to guide the RSA management in the selection of new or modified policies, practices, products, and services. This may be because formative evalaution is not seen as part of the role of an operational agency like an RSA and is not encouraged by funders.

Finally, most of the evaluation findings that have been disseminated to date through forums such as the Transportation Research Board (TRB) have been those of the old-guard RSAs, mostly operating in medium-to-large urban areas and mostly using computerized, passive matching techniques. Indeed, a substantial percentage of the new-wave RSA people have never even heard of TRB or similar information clearinghouses, so they tend to operate in isolation--thus, not learning from other's experiences and not sharing their evaluation findings.

THE CURRENT SITUATION

There are, at present, several hundred RSAs nationwide. They are characterized by great diversity in terms of budgets, staff size and backgrounds, organizational form, size and characteristics of area served, and services offered. Great differences exist among RSAs with respect to the resources available for doing evaluation work. There are some common evaluation needs [e.g., the measurement of reduction in vehicle miles of travel (VMT)], but there are also many unique evaluation needs (e.g., measuring the effectiveness of personalized matching services or other specialized services).

To date, evaluation work by RSAs and researchers in the field has produced some useful results. Sound techniques are now available for performing the basic ridesharing evaluation studies (i.e., to measure the direct effects of RSA promotion and matching efforts on those who have applied for this service). Sound techniques are available for calculating program impacts [i.e., changes in VMT, vehicle trips (VT), fuel consumption, air pollution, parking demand, and user costs]. There are numerous examples of well-written evaluation reports (i.e., a proper audience orientation). There are also some consistent and significant findings, for example, that changes in VMT amount to less than 1 percent of areawide work trip VMT, and that ridesharing is the most cost-effective transportation system management technique for reducing VMT (1).

At the same time, there have been and continue to be major deficiencies in the historical evaluation studies by many RSAs (2). Some of these are

1. Inadequate sample sizes for given study objectives;
2. Nonresponse biases, resulting from use of mail-back surveys;
3. Nonrepresentative sampling techniques;
4. Sample extrapolation errors;
5. Failure to control for external influences;
6. Failure to discriminate between old and new carpoolers;
7. Failure to consider normal carpool turnover rates;
8. Failure to account for carpool dropouts (or to measure longevity);
9. Failure to account for prior mode of new carpoolers; and
10. Failure to measure trip circuity of carpoolers, home-based and work-based midday travel.

Another consistent omission in most RSA studies is the absence of any formative evaluation, whose purpose is to improve future performance. The main focus of attention is on examining possible changes in policies, practices, and services. The theme can be summarized as increased client awareness, or, more prosaically, know your customers, a concept that is second nature to marketing specialists. The lengthy list of formative evaluation issues includes the following:

1. Satisfaction of applicants with RSA services; If dissatisfied, why?;
2. For ridesharers, reasons for ridesharing; likes and dislikes?;
3. For nonridesharers, what prevented it?;
4. For those who did not apply for RSA services, why not?;
5. General recognition of RSA and knowledge of services offered; and
6. Reaction to possible new RSA services.

In summary some RSAs are performing high-quality historical evaluations and others are not. There is a clear need for more uniform study methodologies. Most RSAs are not performing any significant amount of formative evaluation. Development and dissemination of formative evaluation techniques are needed, but these techniques must be appropriate for the wide range of RSA resources available for performing such studies.

FUTURE RESEARCH NEEDS

Many ridesharing research needs are already clear, but they are listed and discussed below, in order of decreasing priority as I see them.

Development of Standardized MOEs

Standardized measures of effectiveness (MOEs) (or performance measures) are sorely needed by RSAs for measuring both the direct RSA effects (persons placed into pools as a direct result of applying for RSA services) and the indirect effects (persons who were induced to rideshare as a result of employer-based or mass-media promotion by the RSA, even though they did not apply for RSA services). For purposes of discussion, MOEs that have been more commonly used can be separated into four categories as follows:

1. RSA activities--Number of employers contacted; number of employers actively surveyed (promotion and matching); number of employees reached; number of applications received; and minutes of television, radio air time, and newspaper column inches obtained;

2. Effectiveness--Number of persons assisted or placed into each ridesharing mode, average duration in each ridesharing mode, and awareness of RSA services;

3. Transportation impacts--Reduction of VMT and VT, reduction of gasoline consumption, reduction of air pollution emissions, and commuter cost savings; and

4. Cost-effectiveness--Cost per person placed (by mode), or cost per pooler-year; cost per VMT reduced, per VT reduced, per gallon of gasoline saved, etc.; and cost per dollar saved by program users (often called cost/benefit).

Of course, this list is not exhaustive. Most RSAs would appreciate guidance about which MOEs are important. Perhaps this is more of an information-dissemination problem than a research problem, but it is a major need.

Standardized Evaluation Methodologies

Ideally, these survey methodologies should be cookbook, simple descriptions of what to do. For survey techniques, the standard methodology would include

1. Identification of survey populations,
2. Description of survey techniques,
3. Selection of sample and calculation of sample size,
4. A standard questionnaire form,
5. Training of interviewers and pretesting the questionnaires,
6. Performing and monitoring the surveys, and
7. Analysis of data collected (detailed formulas, statistical programs, etc.).

For small-group and structured-interview techniques (e.g., decision-analysis panels and focus groups), the standard methodology might include

1. Identification of target populations,
2. Selection and recruitment of specific individuals,
3. Procedures for setting up and conducting the sessions or interviews,
4. Analysis and interpretation of findings, and
5. Application of findings to RSA policies and practices.

This item (standard methodologies) is probably the most difficult of the research needs listed here because of the great diversity of resources available to RSAs for performing evaluations. At one extreme, several RSAs have evaluation specialists on staff or available through staff loans. At the other extreme, there are numerous one-person RSAs, and that one person is selected on the basis of management and marketing skills rather than evaluation abilities. I feel that several standardized methodologies are needed, each targeted to a specific level of sophistication and need. And perhaps someone other than the RSA should be performing the evaluations, someone with greater resources and objectivity.

Guidelines for Transferability of Findings

A more relevant way of stating this need is, How can one RSA be fairly compared against others? Funders are already asking, What has been accomplished at comparable RSAs elsewhere? New RSAs are now asking, What are reasonable first-year objectives based on the experiences of comparable RSAs?

Of course, this begs the question of what is a "comparable" situation. This requires some careful research into the situational factors that affect

the success of an RSA. Of course, no two situations are identical. We need to identify what factors are important and what factors have little or no bearing on RSA success--success now defined in terms of standardized MOEs and evalution methodologies. Situational factors affecting comparability can be grouped into the following categories:

1. The RSA--Budget, staff size, organization form, services offered, etc.;
2. The market served--Number of commuters, existing level of ridesharing, number of large employers, nature of the area (e.g., rural versus urban, dispersed versus concentrated work sites, etc.), commuter characteristics (trip lengths, incomes, automobile availability, etc.);
3. The macroenvironment--Price and availability of fuel, condition of the local and national economy, local air pollution or traffic congestion or parking problems, transit availability, etc.; and
4. Personalities and institutions--Personalities of key RSA staff and/or supporters, the local institutional setting (cooperating or competing public or private entities), regulatory constraints, etc.

Once it is clearly understood how these myriad factors affect the success of an RSA, then it will be relatively easy to develop performance standards for each RSA and to identify expected levels of accomplishment. This would be of great value to both RSA funders and the RSA staff as well.

From the point of view of both the funder and the RSA, a more important transferability issue is, How can the evaluation findings be used to compare the RSA with other transportation programs competing for local funds? Rational allocation of increasingly limited resources requires this type of comparison (in which ridesharing usually emerges very favorably), but such comparisons are rarely done. Research is needed to develop guidelines for comparing ridesharing programs with other transportation programs.

Techniques for Evaluating Program Components

A common need voiced by many RSA staff people is, How do I know if this particular part of my program is worthwhile? Such questions have been raised concerning mass-media marketing, employer-based marketing, new activities such as personalized matching or neighborhood-based coordinators, etc.

From the perspective of RSA management, these are critical needs. Assembling a ridesharing program nowadays is based mostly on tradition and educated guesswork. RSA decision makers are often asking about major components, such as mass-media marketing, but sometimes also carry the question to a finer level of detail. For example, How valuable are roadside signs and where should they be placed?

Evaluation techniques for assessing the value of specific program components are clearly desired, and these lower-level evaluations will probably have to be integrated with the overall program evaluation procedures. This has been done in only a few instances so far.

Extending this logic in the other direction, perhaps more than program activities should be evaluated. Two important examples come to mind:

1. Oganization form. Most RSAs are contained within a metropolitan planning organization or the state department of transportation, and for RSA staff this organization form is a given. But considering the curious public-private character of most ridesharing promotion, is this the best organizational form? What unique local characteristics will affect this issue?

2. Personalities. I have heard a number of knowledgeable ridesharing practitioners claim that the single most important determinant of success or failure of an RSA rests in the personality and capabilities of the key person(s) at that RSA. Can we develop a set of desirable characteristics? (This would certainly be helpful when new RSA staff is being sought.) And who will do the evaluating of current RSA staff?

Understanding the Long Range

There are at least two important long-range considerations worthy of further investigation:

1. Long-range, external trends that affect ridesharing. The most obvious example would be the price of motor fuel, but there are numerous others, including availability of motor fuel; downsizing of automobiles and increasing fuel economy; geographic trends (e.g., the back-to-the-city movement); demographic changes (e.g., family size and age distributions); and economic changes (e.g., disposable incomes, cost of automobiles, and unemployment levels); and

2. Long-range effects of ridesharing. Some of these effects are captured by the MOEs discussed above, but others may also be important: changes in automobile ownership (and demand for new automobiles), in choice of residence or work locations, in quality of life, and in employee productivity.

Study of Information-Dissemination Techniques

There are five major categories of information-sharing techniques that are in common use by RSA staff:

1. Newsletters published by the U.S. Department of Transportation (DOT), state departments of transportation, some RSAs, etc. These should be highly accessible (though not everyone knows about them), but they are limited to superficial treatments of a relatively small number of topics.

2. National conferences, including the National Ridesharing Conference (which has been held every two or three years in the past but may be held annually in the future), and other national gatherings such as the TRB Annual Meeting and National Association of Vanpool Operators meetings. These forums provide in-depth treatment of specific topics, often allowing limited audience discussion, but comprehensive treatment of subjects is usually lacking. The major limitation is accessibility; increasingly limited government travel budgets usually limit attendance to one person per RSA (if that).

3. Local or regional workshops, including the relatively structured workshops conducted by federal agencies and others, plus the less-formal local or statewide gatherings that are periodically arranged. Such workshops are capable of in-depth and comprehensive treatments that permit much audience participation, but they can sometimes be quite expensive if they are well done. Accessibility is a growing problem even here, because many government employees are not authorized to travel out of state to regional gatherings.

4. Federal Highway Administration (FHWA) technical assistance, including the services of the National Ridesharing Information Center plus the telephone consultation and site visits to RSAs provided by several well-known consultants under contract to FHWA and the Urban Mass Transportation Administration (UMTA).

5. The grapevine—this channel is usually based on contacts made through the above four channels. Usually, it is rather haphazard, because an RSA staff person struggling with a problem cannot easily identify other RSAs who have faced that same problem. But when this channel does work, it often works superbly.

These channels appear to work largely independently of each other. Is more coordination needed? How should this be accomplished? Is there need for more coordination or changes within each channel?

A Better Understanding of Ridesharing Formation-Dissolution Process

It is not clear where this should go in the priority ranking scheme. Most RSAs take a very simplistic view of the ridesharing formation process. If a person is driving alone at the time of application to the RSA and if RSA services resulted in that person joining or forming a carpool, vanpool, etc., then the RSA will take credit for one person placed. An enlightened critic might contend that some of those applicants would have formed a carpool by themselves, without RSA assistance. This nabob of negativism stubbornly maintains that an RSA's impacts must be compared with what would have existed had the RSA not been on the scene. Certainly, a cold-blooded funder could feel justified in taking this position.

The rejoinder of the fast-thinking ridesharing advocate could be, an RSA accomplishes more than placing poolers. It also increases awareness and helps change attitudes about commuting. This is likely to have a deferred but perhaps substantial long-range impact on commuter modal-choice behavior, including those commuters who apply for services but are not placed into pools, plus those commuters who are reached by the indirect mechanisms discussed earlier. How will the RSA get credit for these invisible, long-range impacts?

A better understanding of the process by which commuters move into, between, and out of pooling arrangements would not only make for more equitable RSA evaluations but would also enable the RSA staff to better understand both their customers and the services the RSA offers. This should improve the performance of most RSAs significantly.

CONCLUSION

Several questions must be asked about each of the research issues raised in this presentation.

1. How important is it? What priority should it be given in view of increasingly limited research funding? What benefits can be expected?

2. How does it relate with the other evaluation issues and with other research topics in ridesharing or beyond?

3. What roles should be played in performing the research for each issue? At a minimum, the players should include RSA staffs, funders, state and federal government representatives, and independent research organizations.

RECOMMENDATIONS

Based on my participation in the recent series of FHWA and UMTA ridesharing workshops during which I came into contact with staff from most of the several hundred ridesharing agencies nationwide, I recommend that a two-pronged program of research be undertaken to advance both the state of the art and the state of the practice of ridesharing programs.

State of the Art

Because ridesharing is such a new field, it is not

surprising that there is much pure research needed. As mentioned above, there is much to be learned about the various aspects of the commuter modal-choice process--incentives and disincentives to commuters and employers, the social factors inherent in the ridesharing arrangement, and the impact of long-range social and economic trends, for example. This is clearly the stuff of research work as it is traditionally known to TRB and most of the participants at this workshop. TRB is an excellent forum for structuring and guiding this research effort.

State of the Practice

I have argued strongly (and convincingly, I hope) that there is a large chasm between the research community and the practitioners. Many RSAs operate in isolation. They are largely unaware of the research results that most people at this conference take for granted. Most RSAs operate with very limited resources. Thus, some of their most immediate needs are quite basic--for example, the need for simple evalution procedures that can be carried out by a nonexpert. There is much evaluation research work to be done that is not very glamorous, but it is very needed by ridesharing practitioners.

My bias should be obvious at this point. I feel that the greatest need, at present, is to advance the state of the practice by producing and disseminating research findings that are immediately usable.

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