Appropriate Cost Sharing for Paratransit Service

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Public transit operators providing paratransit service to comply with the Americans with Disabilities Act are focusing on paratransit as a form of supplementary public transportation. Much of the demand for paratransit service consists of trips that bring clients of social service agencies to and from programs of those agencies. For various historical and institutional reasons, this demand is considered different from the demand by unaffiliated individuals for nonagency purposes. To reduce their financial burden of compliance, the operators often desire to recover all or part of the cost of "social service agency trips" from the agencies. Two case histories are used to illustrate three issues connected with recovering the cost of agency trips: (*a*) How to determine or define which trips are agency trips and which are individual trips; (*b*) Reaching agreement on what is the appropriate fare or share of costs to be paid by the agencies; and (*c*) Determining the actual cost of the agency trips. A cost allocation model for paratransit service, which was used to determine the fixed and variable components of cost for eight different types of service offered by a single provider, shows how such a model is useful for policy decisions.

As paratransit services have developed they have been viewed in two different ways:

1. As a form of public transportation, similar to conventional transit systems, for people who cannot use conventional transit; and
2. As an adjunct to social services for a variety of special groups, including people with disabilities, people with low incomes, and seniors.

The two views are reflected in distinct but connected histories of legislative efforts and programs.

PARATRANSIT AS PUBLIC TRANSPORTATION

The public transportation view is connected to the debate that used to take place over a perceived choice between fixed-route accessibility and separate door-to-door service. This view is embodied in the federal Department of Transportation (DOT) rules implementing Section 504 of the Rehabilitation Act of 1973 (*1*), which required "interim accessible transportation" as a temporary substitute for fixed-route accessibility. [This "final rule" was later reissued in May 1986 after a legal challenge and congressional action and eventually was subsumed into the regulations of the Americans with Disabilities Act (ADA).]

The paratransit provisions of ADA represent the culmination of this view. In requiring that transit operators provide paratransit comparable to the operators' fixed-route services, ADA makes the unspoken assumption that the demand for such services will be comparable, that is, similar to the demand for fixed-route transit in the diversity of trip purposes and destinations served, and the independent nature of most trip makers. This public transportation orientation can be seen in many provisions of the ADA regulations, such as the prohibition on trip purpose rules for nonsubscription trips (also in the earlier 504 regulations), the limitation of subscription trips to 50 percent of demand at any time of day, and the provision that fares for social service agency trips are expected from the twice-fixed route limits that apply to other paratransit trips.

PARATRANSIT AS SOCIAL SERVICE

Most paratransit service in the United States, including both public and nonprofit providers, is of the second type. For example the 1990 San Francisco Bay Area Paratransit Plan (*2*) divided existing paratransit trips into two types:

- General trips were defined as trips by individuals to destinations of their choice, not associated with any agency programs.
- Program trips were defined as trips provided by or sponsored by human service agencies for the purpose of carrying clients to and from programs of those agencies.

The plan found that existing paratransit services in the nine-county San Francisco Bay Area provided about 1.5 million general trips and 4.1 million program trips.

For at least 20 years policy makers and practitioners have been complaining about the uncoordinated nature of social service transportation and attempting to coordinate it. For example, one of the goals of Section 147 of the 1973 Federal Highway Act was to "enhance coordination, i.e., increasing productivity, reducing duplication of services, and arriving at economies of scale among agency transportation providers."

The notion that coordination would lead to reduced cost is also contained in the 1979 504 regulations (*1*) that state the following:

> The recipient, working through the MPO, shall use its best efforts to coordinate and use effectively all available special services and programs in the community in order to ensure the provision of service that meets the standards of paragraph (b)(2)(ii) of this section. Such services and programs may reduce the recipient's expenditure obligation under paragraph (b)(2)(i) of this section. . . .

COST SHARING AS BARRIER TO COORDINATION

One of the (many) barriers to coordination has been the fear that one agency or another will not shoulder its fair share of costs. In particular, some general public paratransit programs, such as those run by

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transit operators and cities, have been concerned that coordinated service will lead to "client dumping" on the part of many agencies —in other words, that agencies would simply discontinue their own service and rely on the public service without making any financial contribution beyond the regular fare. In that event the notion contained in the 504 regulations just cited would be misguided. By coordinating, a transit operator would increase rather than decrease its financial obligation. The case histories in this paper illustrate how these concerns have played out in two areas.

CASE HISTORIES IN TWO COUNTIES

San Mateo County, California

San Mateo County is located on the San Francisco peninsula immediately south of the city and county of San Francisco. It has a population of about 650,000, with moderately dense development in the urbanized areas. The San Mateo County Transit District, known as Sam Trans, operates fixed-route service on an annual operating budget of about $50 million, carrying about 18 million passengers per year on 86 routes with 302 buses.

SamTrans also operates a paratransit system called Redi-Wheels for elderly and disabled riders. Redi-Wheels service is provided under a contract with DAVE Transportation using a fleet of 28 SamTrans-owned accessible minibuses. In April 1992, as part of its ADA compliance plan, SamTrans initiated a supplementary taxi and lift-van program to handle trips for which there is insufficient capacity using the Redi-Wheels fleet.

In the more than 10 years that Redi-Wheels has been operating, the service has come to be dominated by service for social service agencies and their clients. The history of this trend, the language used in discussing it, and policy decisions pertaining to it have been a source of intense discussion and discord between SamTrans and other agencies. Until recently there had been a consensus among most participants in the planning process that providing social service agency trips served important community needs and made the most effective use of resources by serving many group trips. The Paratransit Coordinating Council, a community oversight organization with a mandate from the local metropolitan planning organization, had established a trip priority system that reinforced the focus on agency trips. This consensus began to evaporate during the period leading up to passage of ADA, when the vast unmet need for general paratransit trips came to assume more importance.

Through June 1989, a nonprofit agency, Poplar Center, operated parallel to Redi-Wheels providing service exclusively for social service agency programs. Poplar Center charged the agencies under a variety of rates that recovered amounts ranging from 11 to 100 percent of the cost of service. The remainder was covered by a variety of public funding sources. At this time Poplar Center was also the Redi-Wheels contractor. Redi-Wheels service provided rides to clients of many of the same agencies as did Poplar Center's own service, charging them the regular Redi-Wheels fare, which was $.60 at that time.

In July 1990 Poplar Center discontinued most of its transportation operations because the agency was losing money. SamTrans contracted with DAVE Transportation to provide the Redi-Wheels service, and most of the former Poplar Center agency service was folded into the Redi-Wheels service. At about the same time a new "equitable fare structure" was adopted, which was designed to recover approximately 31 percent of costs from all agencies receiving service. The equitable fare structure proved to be extremely unpopular with certain agencies.

In late 1990 work began on the San Mateo County Paratransit Plan. The situation at that time was as follows:

- Approximately 64 percent of Redi-Wheels trips were being used to carry clients of ten agencies.
- The agencies were being charged according to the equitable fare structure, which would actually recover about 24 percent of the cost of service.
- Two agencies serving clients with developmental disabilities, whose clients had received Redi-Wheels service for $.60 per ride, refused to pay according to the equitable fare structure. Redi-Wheels did not collect fares from those clients and continued to bill the agencies.
- Approximately 21 percent of Redi-Wheels trips were being used to provide subscription service to unaffiliated individuals, primarily for dialysis and cancer therapy.
- ADA had already been passed; it would require unconstrained service primarily directed at nonsubscription travel, which then accounted for only 15 percent of Redi-Wheels service.

Eugene, Oregon (Lane County)

Eugene is the county seat of Lane County. The metropolitan area, which includes the adjacent city of Springfield, has a population of just under 200,000. Fixed-route transit service is provided by the Lane Transit District (LTD) which serves about 6 million passengers per year with a fleet of 77 buses and an annual operating budget of about $9 million.

For paratransit service, LTD contracts with the Lane Council of Governments (L-COG), which in turn contracts with Special Mobility Services, Inc. (SMS) for daily operations in the Eugene area. SMS is organized as a nonprofit corporation and has obtained 15 vehicles through the 16(b)(2) program for use in Eugene area paratransit service.

Paratransit service in the Eugene area has been highly coordinated. LTD has seen this as a way to spread overhead costs over a larger base. Nearly all available transportation-related subsidy funds are channeled through the one contractor, SMS. SMS, as a nonprofit agency, has been able to obtain 16(b)(2) vehicles and generally has been the only applicant for 16(b)(2) vehicles in the Eugene area. In delegating the contracting function to L-COG, LTD has encouraged coordination with the variety of senior services provided by L-COG, including the senior component of the Title XIX (Medicaid) program and the federally funded Senior Companions program.

L-COG has encouraged SMS to provide service to a number of social service agencies. When Crain & Associates began work on the Lane County Long Range Paratransit Plan, the situation was as follows:

- One agency, which provides services to developmentally disabled clients, entered into a formal contract with SMS, under which it paid a flat amount of $24,000 per year and received approximately 4,100 vehicle-hr of service.
- An adult day care agency received service at the regular Dial-a-Ride fare.
- Clients of the county developmental disabilities agency received after-hours taxi service at no charge.

• In response to encouragement from L-COG to make a substantial amount of trips available to the Title XIX program, SMS had quoted rates for Title XIX service that were substantially below the state-allowed maximum rates.

L-COG had also used some Older Americans Act (OAA) funds under its administration to fund a Volunteer Escort program and a flexible-route grocery shopping service for seniors, both of which were operated by SMS. However, by 1990 the OAA funding had been reduced to very small amounts, while the services continued.

Excluding volunteer service and the flexible-route grocery shopping service, about 50 percent of paratransit service was being provided to agency-sponsored riders, including Title XIX clients.

As part of the Long Range Paratransit Plan, L-COG and LTD wished to address the issue of coordination and determine whether the existing distribution of service and costs was fair and mutually beneficial.

WHAT IS AN AGENCY TRIP?

In both San Mateo County and Lane County, transportation officials were concerned about the amount of resources going for social service agency trips and wanted to develop policies that would be viewed as fair while preserving funds for ADA compliance.

Inherently Fuzzy Distinction

A key element in any policy has to be the definition of an agency trip. Staff of social service agencies correctly point out that their clients are individuals and have the same right to service as any other individuals. Much travel to social service programs is initiated at the individual's request. They point out that social service programs serve the needs of particular groups in much the same way other institutions and businesses serve other needs.

San Mateo County began grappling with this issue before final ADA regulations were available. The draft regulations issued in March 1990 did not attempt to define agency trips. As part of its work in San Mateo County, Crain & Associates developed a working definition on the basis of the concept of an "agency slot," which it also proposed to FTA in comments on the draft regulations. The final regulations incorporate language very similar to that of the San Mateo proposed policy. (No doubt, similar comments came from many sources.)

ADA Regulations

DOT's final rule implementing the transportation provisions of ADA (*3*) states

> The entity may charge a fare higher than otherwise permitted by this paragraph to a social service agency or other organization for agency trips (i.e. trips guaranteed to the organization). [*3*, § 37.131(c)(4)]

Appendix D to the regulations, which provides the official interpretation of the rules, includes the following guidance:

> This exception . . . applies to 'agency trips,' by which we mean trips which are guaranteed to the agency for its use. That is, if an agency wants 12 slots for a trip to the mall on Saturday for clients with disabilities, the agency makes the reservation for the trips in its name, the agency will be paying for the transportation, and the trips are reserved to the agency, for whichever 12 people the agency designates, the provider may then negotiate any price it can with the agency for the trips. We distinguish this situation from one in which an agency employee, as a service, calls and makes an individual reservation in the name of a client, where the client will be paying for the transportation. (*3*, Appendix D)

The preamble to the regulations explains that part of the intent of this provision is "to deter 'dumping' of social service transportation onto the public paratransit system."

The ADA Paratransit Handbook interprets the distinction this way:

> Informal referrals by human service agency staff should not, however, be treated the same as contract services. For example, a request for service might be made by an agency on behalf of an eligible rider with a cognitive or communication disability. In this case, the complementary paratransit service fare must be used. (*4*, pp. 5–7)

The handbook distinction turns on the word "contract." However, typically the issue is precisely whether certain trips by agency clients should be covered by a contract of some sort, or whether the agency (acting on behalf of its clients) has a right to service, under ADA rules, with no further negotiation. The language in Appendix D of the regulations indicates several useful guidelines:

1. Is a specific quantity of service guaranteed to the agency?
2. Can the agency designate which of its clients will use the service guaranteed to it?
3. Does the agency make the reservation in its name?
4. Does the agency rather than the client pay for the rides?

The first three guidelines are clear, but the fourth is not because some agencies that pay for service maintain that they are simply acting as a collection agent for their clients, who actually bear the cost. Moreover, the question of whether the agencies should pay is not a given; instead, it is often the issue that needs to be decided.

Resolution in San Mateo County

Both San Mateo and Lane Counties have arrived at similar policy solutions on the basis of the ADA regulations. In the case of Lane County, the process was relatively straightforward and cooperative, whereas in San Mateo County the process was drawn out and discordant. The main focus in both cases was on repeated service of a subscription nature.

The essence of the policy is that trips per se cannot be classified as to whether they are agency or individual trips. However service types can be distinguished. It was decided that agencies should be free to choose between two types of service. As described in the San Mateo County Paratransit Plan, the two types of service are as follows.

• *Agency slot*: A trip guaranteed to a particular agency, regardless of the individual who is using it. The agency could change the persons filling their slots at any time.

• *Individual subscription trip*: A recurring trip for which a standing order is placed. Subscription trips would include trips taken by unaffiliated individuals, for example, to dialysis, therapy, or school. A subscription trip would be guaranteed to the individual rider, not the agency, hospital, or school. Each individual subscription would be for travel to a particular destination. Individuals who no longer needed to go to that destination would give up that subscription and would go on the waiting list for any new subscription to a different destination. If the individual is traveling to a social service program on an individual subscription (i.e., not an agency slot), the agency has no rights to the subscription.

A waiting list would be established for individual subscription trips. Anyone desiring subscription service who is on the waiting list would be able to call and request each trip as a nonsubscription trip. However, if demand is such that some requests were being denied, they would have no guarantee of service. The waiting list could take into account trip purpose priorities.

Agencies that choose agency slot service would be subject to cost sharing or premium fares. Any agency that does not wish to pay the premium fare for a guaranteed slot could ask its clients to take their chances in obtaining an individual subscription or arranging each trip separately.

It appears that two San Mateo County agencies will decide to treat their clients as individual subscribers. These are the same two agencies serving developmentally disabled clients who objected to the original equitable fare structure. Their clients had historically paid only the regular Redi-Wheels fare of $0.60 (since raised to $0.85). Both agencies are contractors to the Golden Gate Regional Center, which is responsible for the full range of services to people with developmental disabilities. The Regional Center, like its sister agencies throughout California, maintains that it cannot legally pay a public transit agency more than the regular fare for service. The regional centers are also prohibited from charging their clients for services. It remains to be seen whether the regional centers will actually be content with the limitations of individual subscription service.

In contrast, agencies providing services to seniors have indicated their satisfaction with the new agency fare policy. These are the same agencies that had contracts with Poplar Center before and that promoted the original equitable fare structure. They see a guaranteed quantity of service as essential to being able to plan their programs, and according to the agency directors, they pass the cost of transportation on to their clients. Medicaid trips have never been provided by Redi-Wheels and so are not an issue with respect to cost sharing.

Resolution in Lane County

Lane County adopted a similar policy, distinguishing between "contract service" and "individual subscriptions." Contract service in Lane County may be justified not just by guaranteed service, but any kind of service that goes beyond normal dial-a-ride parameters, for example, in terms of quantity of service used, directness of routing, hours, eligibility, or the level of passenger assistance provided.

As in San Mateo County, it appears that agencies accustomed to paying only the regular fare will opt for individual subscriptions, whereas agencies accustomed to paying more will opt for contract service. The actual division with respect to the type of agency is opposite the one in San Mateo County. The Pearl Buck Center, which serves clients with developmental disabilities, will probably continue to contract for service. It may be noteworthy that the Pearl Buck contract has always been with SMS, the private provider of dial-a-ride services, and not with the county or the transit district.

The major adult day care provider, in contrast, will probably request individual subscriptions for its clients. The day care center has always requested individual rides for its clients, who pay the regular fare themselves. At times day care clients have endured significant refusal rates, although not recently. Lane County plans to begin formal subscription service, which has never existed in the past, so day care clients will actually experience improved service.

A significant element of the Lane County plan is to charge higher fares for individual subscriptions than for other trips. Currently all dial-a-ride trips cost $0.30, and monthly passes are available. The Lane County Long-Range Paratransit Plan calls for phasing in a new fare structure under which individual demand-responsive trips will cost the same as the regular fixed-route fare (now $0.75), and subscription trips will cost $0.25 more. At $1.00, subscription fares will still be under the twice-fixed route ADA limit. Monthly passes will be phased out.

Lane County serves Medicaid trips through its paratransit program, but has chosen to treat Medicaid service as distinct from that offered by social service agencies. This decision is based on the long-standing practice of the Medicaid program paying for transportation. As described in the concluding section of this paper, Medicaid will be charged more than it has in the past for service by the dial-a-ride provider.

WHAT IS THE APPROPRIATE AGENCY COST SHARE?

Paratransit fares typically recover a small percentage of the full cost of service—often below 10 percent. In theory, agencies should pay at least enough to compensate the providing or funding agency for any additional burden it incurs from whatever special treatment the agency is receiving. This goes back to the principle that agency clients have the same rights as any other individuals. In other words, a higher fare or cost share is appropriate if clients are receiving more-than-equal rights. This higher cost would apply if the clients avoid having to go on a waiting list for limited subscription service, if they are not subject to the usual eligibility rules, if they receive a higher level of assistance, and so on.

In practice, the decision on cost shares was based not on theory but on negotiation and local circumstances. In San Mateo County a precedent had been set under the old equitable fare structure, which was based on a calculation that the agencies served by Poplar Center had been paying 31 percent of the full cost of service. Therefore it was possible to obtain agreement on a minor increase to 33 percent of actual cost. Because the actual cost per trip with Redi-Wheels is higher than was the apparent cost per trip with Poplar Center (which was actually losing money), the agencies will see a substantial increase in fares. There will be one phase-in year with 25 percent cost recovery.

In Lane County, the transit district took the position that funds available for dial-a-ride service should not be used to subsidize special service for the agencies. This position was consistent with the original philosophy under which the provider had been encouraged to provide agency contract service to achieve economies of scale and spread overhead costs. As will be described in the next section, a careful cost analysis showed that the agency contributions were not paying the full cost of service received and not even the variable cost of service. (The concept of variable cost is discussed more in the next section.) To avoid cross subsidies, while minimizing the burden on the agencies, it was decided to charge 100 percent of the variable cost of service (less vehicle depreciation) for agency contract service.

HOW TO DETERMINE ACTUAL COSTS OF AGENCY TRIPS

Assuming agreement in principle on an appropriate agency share for certain types of service, it remains to determine what the service received by the agencies actually costs. The simplest method would be to determine the average cost per trip for the system and apply it to the agency trips. That would not be fair, however, because agency trips tend to be highly grouped and do not change much from day to day; therefore they take fewer vehicle-hours per trip and also less scheduling and dispatching time per trip. On the other hand, meeting agency requirements for maximum ride time or extra passenger assistance (delivering patients to doctors' offices in multistory buildings, for example), could result in higher-than-average costs in some cases. Therefore some form of cost allocation model is needed.

The cost allocation problem will be approached in two parts:

1. What portion of vehicle-hours (or driver-hours) is attributable to agency service? The bulk of cost is usually attributed to vehicles and drivers, so it is important to determine whether the productivity of the agency service is higher or lower than the productivity of the other service and by how much.
2. What portion of other costs should be charged to agency service? Estimates must be made of the following, all of which are attributable to agency service: amount of administrative and management time; scheduling and dispatching time; maintenance cost; and volunteer time.

Allocation of Vehicle-Hours

In some cases it is easy to identify which part of each vehicle's schedule is for service to a particular agency. In that case, the vehicle-hours for agency service can simply be tallied up from vehicle schedules. This was the case in Lane County for contract service to Pearl Buck Center for bringing its developmentally disabled clients to and from the center. In this case, provider records gave driver-hours instead of vehicle-hours. It was found that 3,026 driver-hr was used to provide 12,444 rides, a productivity of 4.1 rides per hour, well over the average of 2.7 rides per hour for all demand-responsive service. The difference reflects the grouping of trips and the fact that most of the clients are ambulatory.

In other cases agency rides are mixed in with the other rides, so it is impossible to separate the time used for each category of service. This occurs at least some of the time on Redi-Wheels. In Lane County adult day care and Medicaid clients are routinely mixed in with dial-a-ride clients. Crain & Associates developed a statistical model for allocating hours in this situation. For a sample period, the contract providers were asked to record the information indicated in Table 1 for each vehicle run. Then the following regression model was estimated:

$$\text{Vehicle or driver-hours} = a + b_1 \times (\text{trips of Type 1}) + b_2 \times (\text{trips of Type 2}) + \ldots b_n \times (\text{trips of Type } n)$$

The coefficients b_1 through b_n give the number of hours per trip attributable to each of the trip types. The constant a gives the average number of hours per run not directly attributable to one trip type or another.

Results in San Mateo County

For a sample of 119 vehicle runs on Redi-Wheels carrying 1,900 passengers the results of the regression were as follows:

$$\text{Vehicle-hours} = 3.55 + \underset{(0.039)}{0.697} \times \text{individual trips} + \underset{(0.019)}{0.259} \times \text{agency trips}$$

The values in parentheses under the coefficients are the standard errors of the estimated coefficients, which show that the two coefficients are highly significant (different from 0 with better than 99 percent probability) and also different from each other. R-squared was .53.

The model results indicate that 0.697 vehicle-hr can be attributed to each individual trip, and 0.259 vehicle-hr can be attributed to each agency trip. This means that the agency trips are more productive than individual trips, in terms of trips per vehicle-hour, by a factor of 0.697 ÷ 0.259 = 2.66.

TABLE 1 Information Recorded for Allocating Hours

San Mateo County	Lane County
Total vehicle hours per run	Total driver hours per run
Total individual trips on each run	Total general dial-a-ride trips on each run for: Ambulatory riders Wheelchair users
Total agency trips on each run	Total trips on each run for: Adult day care Medicaid, ambulatory Medicaid, wheelchair Pearl Buck (developmentally disabled)

TABLE 2 Allocation of Redi-Wheels Vehicle-Hours

Trip Type	Annual Trips	Annual vehicle hours	Trips per vehicle hour
Individual	32,590	24,804	1.31
Agency	58,591	16,764	3.50
Total	91,181	41,568	2.19

TABLE 3 Allocation of Lane County Driver-Hours

Trip Type	Annual Trips	Annual driver hours	Trips per driver hour
Medicaid Wheelchair	2,615	2,252	1.16
Dial-a-ride Adult Day Care Medicaid ambulatory	25,551	9,790	2.61
Total	28,166	12,042	2.34

Using this factor and data on total annual trips of each type, and total vehicle-hours, it is possible to allocate annual Redi-Wheels vehicle-hours to each trip type as indicated in Table 2.

The values for individual and agency vehicle-hours were chosen by dividing the total of 41,568 vehicle-hr so that the resulting productivities had the correct ratio of 1:2.66.

In San Mateo County, the cost allocation process went no further than this. A cost per trip for agency service was calculated entirely on the basis of the vehicle-hour data. This process assumes that all other costs are proportional to vehicle-hours. On the basis of an overall cost per vehicle-hour of \$34.85, the cost per agency trip was determined to be \$34.85 ÷ 3.5 = \$9.96. Redi-Wheels uses a system of three zones. It was estimated that the average agency trip covers 1.25 zones. Because it was agreed that the agencies would pay 25 percent of the cost for the first year of the new policy, the agency fare for 1992–1993 has been proposed as \$9.96 ÷ 1.25 × 25 percent = \$1.99 or approximately \$2.00 per zone.

Results in Lane County

A number of regression models were tried using data supplied by SMS for April and May 1991. It was found that the models worked best if runs carrying Pearl Buck trips were not included. This fits with the fact that very few other trips are mixed in with the Pearl Buck trips. For the remaining trip types it was found (surprisingly) that there was no significant difference in the coefficients for ambulatory dial-a-ride trips, wheelchair dial-a-ride trips, adult day care trips, and ambulatory Medicaid trips. However, wheelchair Medicaid trips were significantly less productive than other trips, probably because of the Medicaid requirement for "door-through-door" service and the extremely frail condition of many of these riders. The following model, based on 203 vehicle runs, was used for the cost allocation:

$$\text{Driver-hours} = 4.66 + \underset{(0.041)}{0.332} \times \text{Medicaid wheelchair trips} + \underset{(0.017)}{0.147} \times \text{other trips}$$

The values in parentheses under the coefficients are the standard errors of the estimated coefficients, which show that the two coefficients are highly significant (different from 0 with better than 99 percent probability) and also different from each other. R-squared was .34.

The model results indicate that 0.332 driver-hr are accounted for by the average Medicaid wheelchair trip, compared with only 0.147 driver-hr for other trips, including all general dial-a-ride trips, adult day care trips, and ambulatory Medicaid trips. In other words, Medicaid wheelchair trips are less productive than others by a factor of 0.332 ÷ 0.147 = 2.25 (an error of 0.01 is created by rounding from the original six-place values).

Using this factor, data on total annual trips of each type, and total driver-hours, it is possible to allocate annual SMS vehicle-hours to each trip type, as indicated in Table 3.

Lane County Cost Allocation Model

In Lane County the allocation of hours was only the beginning of the overall cost allocation process. SMS provides or supervises seven different service components. These have greatly different requirements with respect to dispatching effort, supervision, and maintenance, as indicated in Table 4. Lane County staff members wanted to know exactly what each service component costs, so they could make decisions about funding the various components and how to charge for them. Determining the actual cost of the various components required allocating not only driver-hours, but also the following: administrative staff time, expenses, volunteer time, maintenance time and cost, and dispatch time. The model was

TABLE 4 Lane County Service Components

Service Component	Description	Cost Characteristics
Maxi Taxi	Flexible route grocery shopping service for seniors	Extremely productive. Minimal scheduling effort.
Volunteer Escort	Door-through-door medical rides for frail seniors	No SMS vehicle cost. Requires considerable coordination time. SMS pays mileage.
Dial-a-ride	Door-to-door service for people who can't use transit	Major dispatching effort. Substantial use of subcontracted taxis.
Adult Day Care	Subcategory of dial-a-ride	Similar to dial-a-ride but all clients go to one location and minor weekly variation.
Medicaid (Title XIX)	Door-through-door medical trips booked by Medicaid offices.	Major dispatching effort. No taxicabs. Extra driver time for door-through door.
Pearl Buck	Contract service to Pearl Buck Center	Minimal dispatching or scheduling effort.
Non-SMS Volunteer	Volunteer rides arranged by other offices. SMS only reimburses mileage.	Very minor overhead cost.

developed by Fred Stoffer, General Manager of Special Mobility Services, and Crain & Associates in close cooperation.

Expense Categories

SMS divided the annual cost for FY1991 into seven categories. The consultant added an eighth category—vehicle depreciation. The categories are described in Table 5. In some accounting systems, depreciation is not allowed as an operating expense, but for other needs it is useful to include to calculate fully allocated cost. The costs were further designated as either fixed or variable. Fixed costs are those that would not change for small changes in the amount of service provided. Variable costs are those that would change as a direct result of changes in the amount of service provided.

Cost Drivers

Cost drivers are factors used to allocate the expense categories. Each of the eight cost categories is allocated according to one of six cost drivers, as indicated in Table 6.

Tables 7 and 8 summarize the results of the cost allocation. Table 7 indicates how each expense category was allocated across the program components, and the resulting total cost and cost per ride for each component. Table 8 provides details on the cost drivers that are the basis for the allocations.

Policy Implications

With the division of costs produced by the model, Lane County was able to evaluate each component of service and make the following key policy decisions.

- The Maxi Taxi service is not an ADA-required service, many of its users can use fixed-route buses, and the Older Americans Act funds that supported it in the past are no longer available. However, the cost allocation showed that Maxi Taxi's cost efficiency comes close to that for conventional fixed-route service. Maxi Taxi is being continued, with a fare increase.
- The Volunteer Escort program (which also used to use Older Americans Act funds) turned out to be surprisingly expensive, because of the effort required to coordinate volunteers. However, it

TABLE 5 Cost Categories

Expense Category	Fixed Costs	Variable Costs
Administration	The part of SMS's Portland office expense billed to the Lane County operation. This includes part of the General Manager's time, billing, and general accounting.	None.
Management, Dispatch, and Coordination	Eugene Program Manager time. Eugene office expenses.	Eugene dispatching, scheduling, and support staff time. Does not include time spent by the Volunteer Coordinator on the volunteer program, but does include some time by the Volunteer Coordinator spent on preparing Title XIX invoices.
Drivers and Mechanics	None.	Wages and benefits of the drivers and maintenance staff.
Vehicle Operating Expense	Vehicle insurance.	Non-labor expenses associated with the vehicles including fuel, tires, and purchased maintenance and repairs.
Volunteer Coordinator	None.	Time spent by the Volunteer Coordinator arranging rides.
Volunteer Reimbursement	None.	Mileage paid to volunteer drivers for in-district services only.
Subcontracted Transportation	None.	Amounts paid to taxi companies.
Vehicle Depreciation	None.	The purchase cost of vehicles charged over the expected life of the vehicle.

was decided that the program was effective in extending service to people who otherwise would not be able to receive service because they are too frail to use dial-a-ride on their own.

- The cost per trip for adult day care service was not significantly different from that for general dial-a-ride service. Adult day care clients had been paying the regular dial-a-ride fare of $0.35 (increased to $0.75 in 1993). A policy decision had been made that agencies receiving contract-type service should pay the full variable cost less vehicle depreciation. In the case of the adult day care agency, that would come to $7.74 per trip. Alternatively the agency may elect to have its clients request individual subscriptions, which will cost $1.00 per ride under a proposed new fare structure.
- Medicaid (Title XIX) service turned out to cost considerably more than the rates that SMS was charging for it. For example, SMS had charged $12.25 for wheelchair trips under 10 mi, but the actual cost was $19.59. In fact, even the state-allowed maximums ($16.62 for wheelchair trips under 10 mi) would not quite cover the full cost of the service provided. A local for-profit Medicaid provider had been complaining that SMS was unfairly competing by offering subsidized rates. It was decided to have SMS raise its rates to the state-allowed maximum to reduce the element of unfair competition and to reduce the drain on funds.
- Pearl Buck service turned out to cost $5.37 per trip, whereas the $24,000 per year paid by the agency amounted to $1.93 per trip. Because it requires contract-type service Pearl Buck will be asked to increase its contribution under the variable-cost-excluding-depreciation policy. On the basis of 1990–1991 costs, that would come to $3.73 per ride.

TABLE 6 Method of Allocating Each Cost Category

Expense Category	Allocated According to:
Administration	All of Allocated Expenses: The sum of all the other expense categories allocated to each program component.
Management, Dispatch and Coordination	Estimated Time: Based on estimates by each member of the Eugene office staff of the percentage of their time which they spend on each of the six major service components.
Drivers & Mechanics	Driver Hours: The number of driver hours for Maxi Taxi and Pearl Buck was available from driver logs. The remaining hours were split among Dial-a-Ride, Adult Day Care, and Title XIX based on the statistical analysis of trips provided in April and May 1991.
Vehicle Oper. Expense	Vehicle Miles: The number of vehicle miles for Maxi Taxi and Pearl Buck was available from driver logs. The remaining miles were split among Dial-a-Ride, Adult Day Care, and Title XIX based on a statistical analysis similar to the one done for driver hours.
Volunteer Coordinator	Volunteer Rides: The Volunteer Coordinator's time was allocated according to the number of volunteer rides arranged by SMS for the Medical Escort, Dial-a-Ride, and Title XIX programs. This assumes that it takes about the same amount of time to arrange a ride for any of the programs.
Volunteer Reimbursement	Volunteer Rides: Mileage reimbursement was allocated according to the number of volunteer rides arranged by SMS for the Volunteer Escort, Dial-a-Ride, and Title XIX programs. In the future this expense category can be allocated exactly based on actual expenditures.
Subcontracted Transportation	Taxi Rides: Taxi costs were allocated according to the number of taxi rides purchased for the Dial-a-Ride, Adult Day Care, and Title XIX programs. This assumes that the average trip length is about equal for all three programs.
Vehicle Depreciation	Vehicle Miles: Based on the estimated life, in miles, of each vehicle based on ODOT guidelines, and the purchase price of the vehicles in SMS's current fleet, an average depreciation of $.273 per vehicle mile was calculated.

TABLE 7 Fully Allocated Cost Model: Allocation of Costs to Program Components

		Service Components								
Expense Categories	Fixed Var	Total Cost	Maxi Taxi	Vol. Escort	DAR	ADC	Title 19 Amb.	Title 19 WC	Pearl Buck	Oth. Vol.
Admin.	F	55,296	3,797	1,282	28,197	3,309	3,446	5,427	7,809	2,029
(Portland)		Allocated according to non-administrative cost								
Management	F	27,816	1,252	1,502	16,272	1,502	2,228	2,835	2,225	0
(Eugene)		Allocated according to estimated Eugene staff time spent on each activity								
Office Exp.	F	33,102	1,490	1,788	19,365	1,788	2,651	3,374	2,648	0
(Eugene)		Allocated according to estimated Eugene staff time spent on each activity								
Dispatch &	V	45,056	2,028	2,433	26,358	2,433	3,608	4,592	3,604	0
Coord.		Allocated according to estimated Eugene staff time spent on each activity								
Drivers &	V	169,510	18,527	0	78,668	11,543	7,886	22,565	30,321	0
Mechanics		Allocated according to driver hours								
Vehicle	F	36,792	2,074	0	18,738	2,971	2,309	2,939	7,761	0
Insurance		Allocated according to SMS vehicle miles								
Other Veh.	V	59,072	3,330	0	30,085	4,770	3,708	4,719	12,460	0
Oper. Exp.		Allocated according to SMS vehicle miles								
Volunteer	V	8,686	0	2,227	4,438	0	2,021	0	0	0
Coordinator		Allocated according to metro volunteer rides								
Volunteer	V	22,085	0	1,730	3,448	0	1,570	0	0	15,338
Reimburse.		$2.35342 per SMS-Vol. ride, $1.34424 per non-SMS vol. ride								
Subcontract	V	15,853	0	8	15,765	8	64	0	8	0
Transp.		Allocated according to taxi rides purchased								
TOTAL COST		473,268	32,498	10,970	241,334	28,324	29,491	46,451	66,836	17,367
COST/RIDE		$6.75	$2.51	$11.05	$10.09	$9.42	$10.80	$17.77	$5.37	$1.51
Vehicle	V	59,661	3,363	0	30,385	4,817	3,745	4,766	12,584	0
Deprec.		$.273 per vehicle mile								
TOTAL COST		532,929	35,861	10,970	271,720	33,142	33,236	51,217	79,421	17,367
COST/RIDE		$7.60	$2.77	$11.05	$11.36	$11.02	$12.18	$19.59	$6.38	$1.51
VARIABLE COST		379,923	27,248	6,398	189,147	23,571	22,602	36,642	58,977	15,338
VAR. COST/RIDE		$5.42	$2.11	$6.44	$7.91	$7.84	$8.28	$14.01	$4.74	$1.34

TABLE 8 Fully Allocated Cost Model: Cost Drivers Used to Allocate Expenses

	Service Components								
	All Components	Maxi Taxi	Vol. Escort	DAR	ADC	Title 19 Amb.	Title 19 WC	Pearl Buck	Oth. Vol.
Office Time	(Estimated by SMS staff)								
Percent		4.5%	5.4%	58.5%	.5.4%	8.0%	10.2%	8.0%	0
Driver Hrs.	(Title XIX/DAR/ADC split by ridership, except for Title XIX wheelchairs)								
Amount	16,917	1,849	0	7,851	1,152	787	2,252	3,026	0
Percent	100.0%	10.9%	0.0%	46.4%	6.8%	4.7%	13.3%	17.9%	0.0%
Vehicle Mi.	(Title XIX vs. DAR/ADC split by ridership)								
Amount	218,539	12,318	0	111,302	17,646	13,717	17,459	46,097	0
Percent	100.0%	5.6%	0.0%	50.9%	8.1%	6.3%	8.0%	21.1%	0.0%
SMS Vehicle Rides									
Amount	53,884	12,942	257	20,491	3,006	2,054	2,615	12,443	76
Percent	100.0%	24.0%	0.5%	38.0%	5.6%	3.8%	4.9%	23.1%	0.1%
Volunteer Rides									
Amount	14,277	0	735	1,465	0	667	0	0	11,410
Pct. of Tot.	100.0%	0.0%	5.1%	10.3%	0.0%	4.7%	0.0%	0.0%	79.9%
Metro Pct.		0.0%	25.6%	51.1%	0.0%	23.3%	0.0%	0.0%	
Subcontracted (Taxi) Rides									
Amount	1,978	0	1	1,967	1	8	0	1	0
Percent	100.0%	0.0%	0.1%	99.4%	0.1%	0.4%	0.0%	0.1%	0.0%
Rides on All Modes									
Amount	70,139	12,942	993	23,923	3,007	2,729	2,615	12,444	11,486
Percent	100.0%	18.5%	1.4%	34.1%	4.3%	3.9%	3.7%	17.7%	16.4%
Rides per Driver Hour	3.2	7.0	N.A.	2.6	2.6	2.6	1.2	4.1	N.A.
Vehicle Miles per Ride	4.1	1.0	N.A.	5.4	5.9	6.7	6.7	3.7	N.A.

Percent of Title XIX Rides on SMS Vehicles for Wheelchair Users: 56%

CONCLUSIONS

The following conclusions were drawn:

1. Decisions about cost sharing turned on local politics, the history of relationships among agencies in each area, and previously established practices. These factors were more important than the type of agencies involved and may have been more important than regulatory constraints on the agencies.
2. The ADA rules about charging for social service agency trips are useful but do not provide clear guidance on what is an agency trip. That distinction will have to be defined locally and may need to include an element of choice.
3. Sound policy decisions require meaningful and accurate data on the actual cost of each type of service provided. The cost allocation model presented in this paper demonstrates how such cost data can be estimated.

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Publication of this paper sponsored by Committee on Specialized Transportation.