

Paratransit: A State-of-the-Art Overview

Ronald F. Kirby, Urban Institute

In 1972 the Urban Mass Transportation Administration (UMTA) and the Federal Highway Administration (FHWA) applied the term "paratransit" to a collection of urban passenger transportation modes in between the private automobile and the conventional, scheduled transit services. Included under the umbrella of paratransit were taxi, demand-responsive, and jitney services; daily and short-term car rentals; specialized subscription bus and van services designed for commuters who agreed to patronize them on a regular basis; and various forms of car pools organized primarily for home-to-work travel.

A study of paratransit undertaken for UMTA and FHWA by the Urban Institute (1) pointed out that the different forms of paratransit cannot be distinguished simply by the different types of vehicles involved. Rather, the paratransit forms are differentiated by the type of transportation services the vehicles provide. The same vehicle can provide dissimilar services under different operating arrangements. Buses, for example, are most commonly used for line-haul service with fixed routes and schedules. But the same vehicles might just as easily be driven by a designated passenger who picks up fellow workers and delivers them by express from outlying areas to a plant or office parking lot. Similarly, a regular automobile might function as a rental car or be used with a driver to provide demand-responsive, jitney, or exclusive-ride taxicab services. The more critical distinction is not the physical features but rather the use of the vehicles under certain terms and arrangements.

The study grouped the various paratransit forms according to their major service characteristics:

1. Those in which travelers hire or rent a vehicle on a daily or short-term basis and operate it themselves;
2. Those in which a traveler calls or hails a vehicle such as a taxicab, demand-responsive bus, or jitney; and
3. Those in which travelers prearrange ride sharing such as car pools and subscription vans and buses.

Examples of existing paratransit services presented in the study served to illustrate the potential of these forms for meeting urban travel needs and to identify the main obstacles to more widespread adoption of paratransit in U.S. cities.

For the first of the categories, in which travelers hire a vehicle and drive it themselves, 2 distinct service types were identified. The first, referred to as daily rental car services, represents perhaps the most efficiently operated of all the paratransit services. Many car-rental companies have successfully provided cars, primarily on

a daily basis, to a growing market of business and tourist travelers, resulting in the expansion of the daily rental car industry from 100,000 vehicles to roughly 340,000 vehicles during the last decade or so. The second service type under this category, short-term rental cars available by the trip or by the hour, has not been provided in this country, but is currently being tested with small battery-driven vehicles in Amsterdam, Netherlands. For success, this form of rental car service requires high vehicle use and a minimum reshuffling of vehicles among terminals; whether it will be viable beyond an experimental period remains to be seen.

The second of the categories includes services that are obtained either by hailing a vehicle on the street or by telephoning for one. The services in this category can be divided into 2 subcategories: exclusive-ride services for which the user or users hire the vehicle to convey them directly from one location to another, and shared-ride services for which the users share the vehicle with other travelers who have different trip origins or destinations. Direct-route taxicab services, certain limousine services, and special charter taxi or bus services are exclusive-ride services. Examples of shared-ride services are demand-responsive services (door-to-door, provided in response to telephone requests) and jitney services (nonscheduled, provided along relatively fixed routes). As will be noted later, the distinction between exclusive-ride and shared-ride services has become a crucial one in public policy decisions on subsidizing paratransit.

Services in the third category are those for which the users make arrangements to travel together on a regular basis. It is convenient in this category to distinguish between pool services in which the driver does not receive a fee and subscription services in which the driver is paid. For car pools the riders usually share the operating expenses and take turns at the driving so that there are no special regulatory, insurance, or tax requirements. For subscription bus or taxicab services, however, vehicle condition, financial responsibility, and, in some cases, routes and fares must be approved by public utilities commissions, and the handling of the revenue collected from the riders must satisfy the appropriate tax regulations. Prearranged ride-sharing services using vans may fall into either of these subcategories, though the trend appears to be toward subscription vans rather than van pools.

PROVIDERS

Paratransit services can be provided by private individuals in their own automobiles, by part-time or volunteer drivers in special vans or buses; by taxicab, limousine, charter bus, or other private operators; and by public or private operators of conventional transit services. The costs of these different ways of providing paratransit services vary dramatically, ranging from a few dollars per vehicle hour for services with part-time or volunteer drivers to more than \$20 per vehicle hour for services provided by some transit authorities with full-time bus drivers. Depending on load factors, these costs per vehicle hour may lead to costs per passenger-mile for paratransit services ranging from a few cents to well over a dollar.

The capacity and skills of these different provider groups also vary substantially. Obviously there is enormous capacity within the private automobile fleet, particularly during rush hours when 3 out of 4 automobiles carry only the driver. The taxicab and limousine industries also have substantial capacity for providing paratransit; these industries operate more vehicles than the transit industry does and are represented in thousands of communities that are without conventional transit systems.

A large reservoir of potential drivers for subscription van or bus services also appears to exist among the rush-hour commuting group, and the capability of these paratransit services might be expanded substantially if more vehicles could be made available. Part-time or volunteer drivers are not likely to be so readily available, however, for providing more specialized services for the elderly, the handicapped, and other limited mobility groups. Social agencies may have to rely to a large degree on the taxi, limousine, or transit industries for these services, or they may decide to organize their own services by purchasing vehicles and hiring drivers.

REGULATION

The role of paratransit in urban transportation systems is greatly influenced by regulations enacted by state and local public service commissions. Although all paratransit services are subject to some regulation with respect to vehicle condition and insurance, many of the paratransit forms are also regulated with respect to entry, service levels, and fare structures. Thus, while operators of car pools, van pools, rental cars, and, to some degree, limousines are free to organize their services and payment schemes as they wish, operators of taxicabs, jitney, and demand-responsive and subscription bus and van services must generally obtain regulatory approval for the services they offer and the fares they charge.

Regulation of paratransit service levels often severely limits the kinds of services that existing paratransit providers could offer. Taxicabs are usually prohibited from offering shared-ride services, for example, and are even prohibited from delivering packages in some cities. Fixed-route jitney operation has been outlawed in virtually all U.S. cities as unfair competition to conventional transit services, and subscription van and bus services have typically been prohibited from operating over established transit routes.

The regulation of paratransit fare levels is often characterized by an unwillingness on the part of regulators to adjust fares quickly in response to significant changes in costs and ridership. Over a period of rapidly increasing costs (such as the last 5 years or so), such inflexibility in fare and service adjustment can create severe financial problems for the transportation provider. The taxicab industry in particular appears to be on the verge of bankruptcy in several cities, largely as a result of restrictive regulation.

PUBLIC ASSISTANCE FOR PARATRANSIT

U.S. cities have been attempting to upgrade public transportation during the last decade with an infusion of public funds from all levels of government. Under the National Mass Transportation Assistance Act of 1974, the federal government alone has disbursed more than \$4 billion to the cities in financial assistance for public transportation. Well over half of this amount has been used for constructing or modernizing rail rapid systems in 10 major cities; virtually all of the remainder is being used to purchase capital equipment for bus transit in urban communities of varying population size.

Under the National Mass Transportation Assistance Act of 1974, almost \$12 billion is available during a 6-year period through 1980 for assisting public transportation systems: \$7.825 billion under section 3 for capital expenditures and \$3.975 billion under section 5 for either capital or operating expenditures (2). Funds for capital expenditures on public transportation are also available under the Federal-Aid Highway Act of 1973, and other federal agencies such as the Administration on Aging have programs that can be used to improve mobility for certain limited mobility groups. In addition, state and local governments are providing varying degrees of financial assistance for public transportation out of gasoline tax revenues, special sales or property taxes, revenue-sharing funds, or general revenue. Increasing demands on government budgets at all levels make it imperative, however, that these funds be used in a cost-effective and efficient manner.

UMTA's Office of Policy and Program Development encourages use of federal subsidy funds for paratransit, but only when the services are shared rather than exclusive ride and when they are offered to the public on a regular and continuing basis (3). Thus, conventional taxi and limousine services that give the passenger exclusive use of the vehicle are not eligible for subsidy funds, and the daily and short-term rental car services described earlier are also ineligible. Shared-ride services such as demand-responsive, jitney, and subscription are eligible, however. It is interesting to note that a number of cities such as El Cajon and La Mesa in California, which have subsidized paratransit forms, have taken the same view as UMTA in restricting the use

of public funds to shared-ride services.

Public funds are also available for research and development projects on paratransit. The U.S. Department of Transportation has recently funded further research on the composition and regulation of the taxicab industry, on the operation of subscription bus services, and on the design of a specialized small vehicle for taxi and demand-responsive services. With regard to some promising but poorly understood paratransit applications such as jitney service along fixed routes, demand-responsive and subscription feeder services to conventional transit terminals, areawide subscription van programs, and the use of reduced-rate tickets to subsidize taxicab services, demonstration projects are being developed in selected cities under UMTA's Service and Methods Demonstration Program. Other federal agencies such as the Federal Energy Administration are actively studying and promoting paratransit, as are a number of public agencies at the state and local level.

IMPLEMENTATION QUESTIONS

Four major types of travel demand stand out as areas where paratransit services could make a near-term impact on passenger transportation problems: high density home-to-work travel, low density travel demand, access trips to line-haul transit, and travel within business and commercial districts. This section discusses the questions raised by attempts to expand paratransit services in each of these markets.

High Density Home-to-Work Travel

The most common paratransit service suited to regular high density travel is the car pool. Since car-pool riders typically share the expenses of the vehicle trip and none of the riders receives any payment, car pools are allowed to operate without regulation and the riders are covered by standard automobile insurance. Van pools organized by companies for their employees have also been allowed to operate without regulation in a number of cities.

Because of the contribution car and van pools make to reducing the affects per passenger trip of congestion, pollution, and fuel consumption, public resources have been used to organize and promote them (just as savings in parking requirements have led private organizations like the 3M Corporation to assist them). The use of public funds for car and van pooling raises the following question, however: Do these services meet the test of availability to the general public? A car-pool matching service accessible to everyone presumably would qualify, but car and van pools organized exclusively for certain companies or neighborhoods may not. Should services available only to certain users be eligible for public funds? UMTA policy appears to exclude such services from assistance under the Urban Mass Transportation Act, though some uncertainty still surrounds this question.

Prearranged ride-sharing modes with paid drivers, referred to here as subscription rather than as pools, are likely to be subject to some regulation and to special insurance requirements. The question here is: When is a driver considered to be paid rather than simply compensated for expenses? Presumably if the driver of a car or van charges the passengers fares that can be shown to exceed expenses, he or she is a paid driver, though no definite ruling appears to have emerged from existing operations. There is no ambiguity, of course, if the driver receives a definite salary or commission, as is generally the case for services provided with taxicabs, limousines, or buses. What are the likely insurance implications of moving from common car pools to paid drivers and larger vehicles? Insurance has always been a major cost item for taxicabs, and there are indications that subscription van services may also encounter very high insurance costs.

For subscription services, whether provided by van, taxicab, limousine, or bus, some important questions arise with regard to regulation. Regulatory bodies have typically restricted these subscription services to certain routes and population groups

not served by the existing scheduled transit system. (Some exceptions are made for subscription services provided by the transit system itself. California and Connecticut have recently excluded from these restrictions services for which the driver is on his or her way to or from work and the vehicle seating capacity does not exceed 15 passengers.) Are such restrictions in the public interest? And if so, must we conclude that these subscription services are not available to the general public and consequently should not be eligible for UMTA funds or for other forms of government assistance? To obtain permission to contract with a private charter bus operator for subscription bus services, Reston Commuter Bus, Inc., recently had to assure the Washington Metropolitan Area Transit Authority that the service would be available only to residents of Reston and would not pick up or drop off passengers at any points between Reston and the downtown employment area. Is this example typical of the regulatory constraints that await new subscription services?

The final paratransit form that could serve high density home-to-work trips is jitney service, which could be provided by taxicabs, limousines, vans, or individuals in their own automobiles. The prospect of small independent jitneys displaying destination signs and running along major corridors in rush hours appears to bring delight to some transportation economists and irritation to most transit operators and unions. What would happen if regulations prohibiting jitney operation were relaxed? Would the jitneys attract most of their riders from transit or from private automobiles? Would street congestion increase due to jitney operation? At present there appears to be little prospect of answering these questions in U.S. cities since there are no indications that regulatory commissions are contemplating lifting anti-jitney regulations. Attempts to interest cities in experimentation with a few jitney routes have generated some interest although a formal jitney experiment has not yet been implemented. The future of the controversial jitney in U.S. cities is uncertain, to say the least.

Low Density Travel Demand

Low density travel demand, such as that in small towns or at off-peak hours in larger areas, can be served conveniently by exclusive-ride taxi or charter services, by demand-responsive services, and to some extent by car-pool and subscription services. The substitution of some of these paratransit services for poorly patronized conventional transit services might lead to improved service at lower costs for low density demand areas. A particular case of low density demand is that of limited mobility groups—the young, the old, the unemployed, the poor, and the handicapped. Increasing concern at all levels of government for the mobility of these groups has focused attention on the question of the respective roles transit and paratransit should play in meeting these needs.

A number of different transportation providers might operate paratransit services for low density travel demand: part-time or volunteer drivers in their own vehicles or in publicly owned vehicles; operators of taxicabs, limousines, and small or specially equipped buses in the transit system; social service agencies that operate their own transportation services; or other privately organized agencies dedicated to special groups such as the handicapped or the elderly. The major implementation question here is: Who should provide the services in a given situation, and how do we ensure that all the potential providers are given the opportunity?

As discussed earlier, regulatory and financing considerations inhibit many transportation providers from obtaining the authority and financing necessary to operate these services. Private for-profit providers have yet to receive any direct assistance under the National Mass Transportation Assistance Act of 1974, and many taxicab operators will not even be eligible until local regulations are changed to permit shared-ride services. If such regulations were changed, could taxicab or limousine operators provide shared-ride services with equipment purchased with public funds and use that same equipment for exclusive-ride services, just as public transit authorities use their vehicles for charter services?

Even where private for-profit providers can establish eligibility for assistance under

the National Mass Transportation Assistance Act of 1974, applications for assisting them will still have to satisfy the labor protection requirements of section 13c, which have been applied in practice to ensure that projects funded under the act do not result in any worsening of the employment conditions of conventional transit employees. On the other hand, applications for assisting publicly owned transit systems must satisfy the requirements of section 3e, which provides for the maximum feasible participation of private mass transportation companies. To the extent that taxicab companies can provide eligible paratransit services and qualify as "private mass transportation companies," they are entitled to protection under section 3e. Further, employees of taxicab companies may well be entitled to protection under the labor provisions of section 3c.

Thus, some projects funded under the act in the future might have to provide for the maximum feasible participation of taxicab and other private mass transportation companies, and also protect both transit and taxicab employees against any worsening of their employment conditions. The potential problems inherent in satisfying all these provisions have yet to be faced, and their impact on the distribution of funds under the act is still a subject of great uncertainty.

Under section 16b2 of the National Mass Transportation Assistance Act of 1974, UMTA has begun to earmark assistance for nonprofit corporations and associations, much to the consternation of many private for-profit providers. Section 16 is designed to provide planning and capital assistance funds for the special needs of the elderly and handicapped, and section 16b2 specifically provides for funding nonprofit corporations without requiring the usual section 13c approval by the Secretary of Labor. In allocating section 16b2 funds by formula to the states, UMTA seems to be giving nonprofit corporations an unfair advantage over for-profit providers and may jeopardize the financial viability of for-profit providers currently serving the elderly and the handicapped.

Some state and local bodies have contracted with private, for-profit providers for low density paratransit services and have established subsidy programs that might not be possible under the Urban Mass Transportation Act. The city of El Cajon, for example, used revenue sharing funds to contract with a taxicab operator for demand-responsive services to replace certain poorly patronized bus routes operated by San Diego Transit. Could a proposal of this kind satisfy the requirements for UMTA funds?

Access Trips to Line-Haul Transit

Car-pool, subscription, taxi, and demand-responsive services might all serve as feeders to line-haul transit systems, and 2 examples of this approach have recently been introduced in U.S. cities. In Rochester, New York, small buses are being used as part of an UMTA demonstration project to provide demand-responsive and subscription feeder services to the fixed-route bus system. And in Arabi, Louisiana, a suburb of New Orleans, a private operator avoids running an uneconomical bus route by providing less costly shared taxi feeder service to the main bus route.

The effectiveness of paratransit feeder services depends on proper coordination between transit and paratransit services. In Arabi, buses and taxicabs maintain contact with the same radio dispatcher in order to schedule transfers between the modes. And a transfer ticket issued on the first mode for use on the second mode integrates the fare systems and passes some of the bus subsidy on to the taxicab system. Can such cooperative arrangements be developed between public transit authorities and private operators? Is it possible to pass UMTA funds through a transit authority to a private operator in this way?

Travel Within Business and Commercial Districts

Internal circulation within business and commercial districts can be served by exclusive-ride taxi or limousine services and by shared-ride services summoned by telephone or by hailing on the street. Services that are hailed can involve vehicles

that travel no fixed route (hail-a-ride) or those that operate along essentially fixed routes (jitney). Downtown minibus services, often provided by transit authorities, would not be considered paratransit, however, because they operate on fixed routes and schedules.

As discussed earlier, most cities prohibit taxicabs from offering shared-ride services and from advertising any route or destination. In January 1974, Washington, D.C., lifted restrictions on shared-ride services for taxicabs rather than increasing fares, and taxicabs now offer hail-a-ride services, though they are still not permitted to display destination signs. The earlier question about restrictive regulation can be raised again here. Is it in the public interest? And could public funds be used to subsidize downtown circulation services provided by private operators?

The downtown circulation application is one that has often been regarded as suitable for the short-term rental car concept, in which a large system of vehicles and terminals are used by a number of qualified drivers. Such a system is in operation in Amsterdam and is under active consideration for this country. The short-term rental car concept is still very much in the experimental stage, however, and has yet to face the kinds of implementation questions that currently surround the other paratransit modes.

One set of implementation questions that applies to all of the 4 markets discussed deals with the actual operation of paratransit systems. What kinds of paratransit vehicles will be needed during the next decade? Can large fleets of demand-responsive vehicles be dispatched without the assistance of greatly improved computer software? Are special taxi meters needed to facilitate shared-ride services, or is a zone fare system adequate? How important are marketing and promotion, and how should these activities be conducted? Although many of these operational questions will require research and development and may take much longer to answer than the regulatory and financing questions, they may prove to be important for certain paratransit applications.

CONCLUSION

To resolve the many questions that surround the implementation of paratransit applications in U.S. cities, we should consider carefully the 2 basic policy principles set forth in the National Transportation Policy Statement (2):

A dynamic, competitive and efficient private sector should meet the Nation's transportation need to the maximum extent possible.

Federal resources are finite and must be expended for transportation purposes that serve national interests, with appropriate state and local participation in financing and decision making.

With respect to regulation, perhaps the major area of concern for paratransit, the policy statement proposes "responsible action to reform and modernize the regulatory structure in which surface, air, and water transportation operate," including,

1. Greater price flexibility, price competition, and a wider range of price and quality options;
2. Elimination of unreasonable restrictions on services and supply to enable carriers to adjust to changing demand and to maximize productivity and energy efficiency;
3. Some liberalization of entry policy, consistent with the need to ensure safe, accessible, and reliable service;
4. Elimination of cross subsidies for nonprofitable routes and services (abandonment of routes where there is no service alternative must proceed cautiously during a transitional period to allow federal, state, or local governments or shippers to intercede to maintain essential services);
5. Prohibition of anticompetitive behavior wherever alternative ways of serving the public interest exist;

6. Identification and elimination of unreasonable barriers to intermodal cooperation, combination, and communication; and

7. Making the federal regulatory structure more efficient by expediting its review procedures and enhancing its capability to protect the consumer's interest.

Although these policy principles and regulatory proposals were aimed specifically at the federal regulatory structure for transportation (particularly that concerned with intercity freight and passenger movement), they are presented by the Secretary of Transportation as basic policies for a "comprehensive approach to transportation" in the United States. And guidelines issued recently by UMTA for projects to be funded under section 5 encourage efficient operations and innovation in service provision. Application of these principles at the state and local levels as well as the federal level would result in greater flexibility in the regulation and financing of paratransit. Such an approach would surely ensure a much greater role for paratransit in meeting transportation needs than has been the case in the past.

REFERENCES

1. R. F. Kirby, K. U. Bhatt, M. A. Kemp, R. G. McGillivray, and M. Wohl. Para-Transit: Neglected Options for Urban Mobility. Urban Institute, Washington, D.C., 1975.
2. Summary of National Transportation Policy Statement. Office of the Secretary of Transportation, U.S. Department of Transportation, 1975.
3. C. K. Orski. Remarks of the Associate Administrator for Policy and Program Development of the U.S. Urban Mass Transportation Administration to the Meeting of the Tri-State Taxicab Association, April 30, 1975.