PRIVATE SECTOR ALTERNATIVES IN URBAN TRANSPORTATION

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NCPA POLICY REPORT #125
January 1987

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EXECUTIVE SUMMARY

Throughout the post-World War II period, there has been a steady, almost unbroken decline in the use of public urban transportation systems and a corresponding rise in the use of automobiles in the U.S.

- In 1945, public transportation accounted for more than 23 billion passenger rides. Today, that figure is less than eight billion.
- More than 90 percent of all motorized trips now are made by private automobiles.
- When travelers are not riding in their own cars, more often than not they turn to taxis, which carry more passengers each year than all U.S. bus and rail systems combined.

Despite the preferences of the traveling public, government spending on urban mass transportation has skyrocketed since 1970. At the same time, annual losses in the industry have been mounting -- climbing from less than $1 billion in 1963 to more than $8 billion per year since 1980.

In contrast to the experience of most U.S. cities, there are numerous examples around the world -- in cities large and small, rich and poor--of privately operated transportation systems that provide high-quality service, without subsidy, at prices that most people can afford:

- Privately owned buses or vans, shared-ride taxis, converted Army surplus jeeps, and converted Toyota pickup trucks, carry thousands of passengers each day in Hong Kong, Kuala Lumpur, Cairo, Nairobi, Puerto Rico, Belfast, Manila, Istanbul and Khartoum.
- Privately operated school buses compete for passengers in the off-hours--legally in Singapore and illegally in New Delhi.
- Privately owned buses openly compete against the public bus system in Calcutta, and competing private bus companies provide virtually all bus services in Buenos Aires.

If the U.S. could move from a one-traveler-one-car transportation system to shared-ride transportation services, there would be great benefits in terms of reduced congestion, reduced pollution, and reduced consumption of energy. Yet, mounting evidence suggests that this will be possible only if small buses and vans are able to carry quickly small groups of people to and from common destinations. In most U.S. cities today, private entrepreneurs who are ready to provide these services are prohibited from doing so.

America can make substantial progress toward solving the problem of urban transportation by giving people the option of turning to private sector alternatives to satisfy their transportation needs.

> The proud minister of an ostentatious court may frequently take pleasure in executing a work of splendour and magnificence, such as a great highway, which is frequently seen by the principal nobility, whose applauses not only flatter his vanity, but even contribute to support his interest at court. But to execute a great number of little works, in which nothing that can be done can make any great appearance, or excite the smallest degree of admiration in any traveller, and which, in short, have nothing to recommend them but their extreme utility, is a business which appears in every respect too mean and paultry to merit the attention of so great a magistrate. Under such an administration, therefore, such works are almost always entirely neglected.
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> Adam Smith, 1776[1]

INTRODUCTION[2]

Throughout the 20th century, in the United States and countries around the world, people have increasingly turned to government to solve problems they believe cannot be solved through the private marketplace. In recent years, however, scholars have discovered that government solutions to social problems often do not improve upon the solutions of the private marketplace. In many cases they make the problems worse. The case of urban transportation in major cities around the world is a prime example of this phenomenon.

The purpose of cities is to facilitate interactions among people. These include interactions such as employment, shopping, education, entertainment, recreation, and purely social relationships. Yet traffic congestion often frustrates these goals. As a consequence, many activities once confined to inner cities are being transferred to suburban areas, and those activities that remain in the inner city are often conducted at considerable inconvenience and cost, precisely because of problems of transportation.

It is possible to identify two types of government failure in the present state of urban transportation:

1. **Failure to allow the development of public transportation systems that people want.** In the U.S. and most "western" cities, the private sector is prohibited from providing low-cost, efficient transportation services that are responsive to consumer demand. At the same time, governments have implemented costly public transportation services that are not responsive to the needs and desires of the traveling public.

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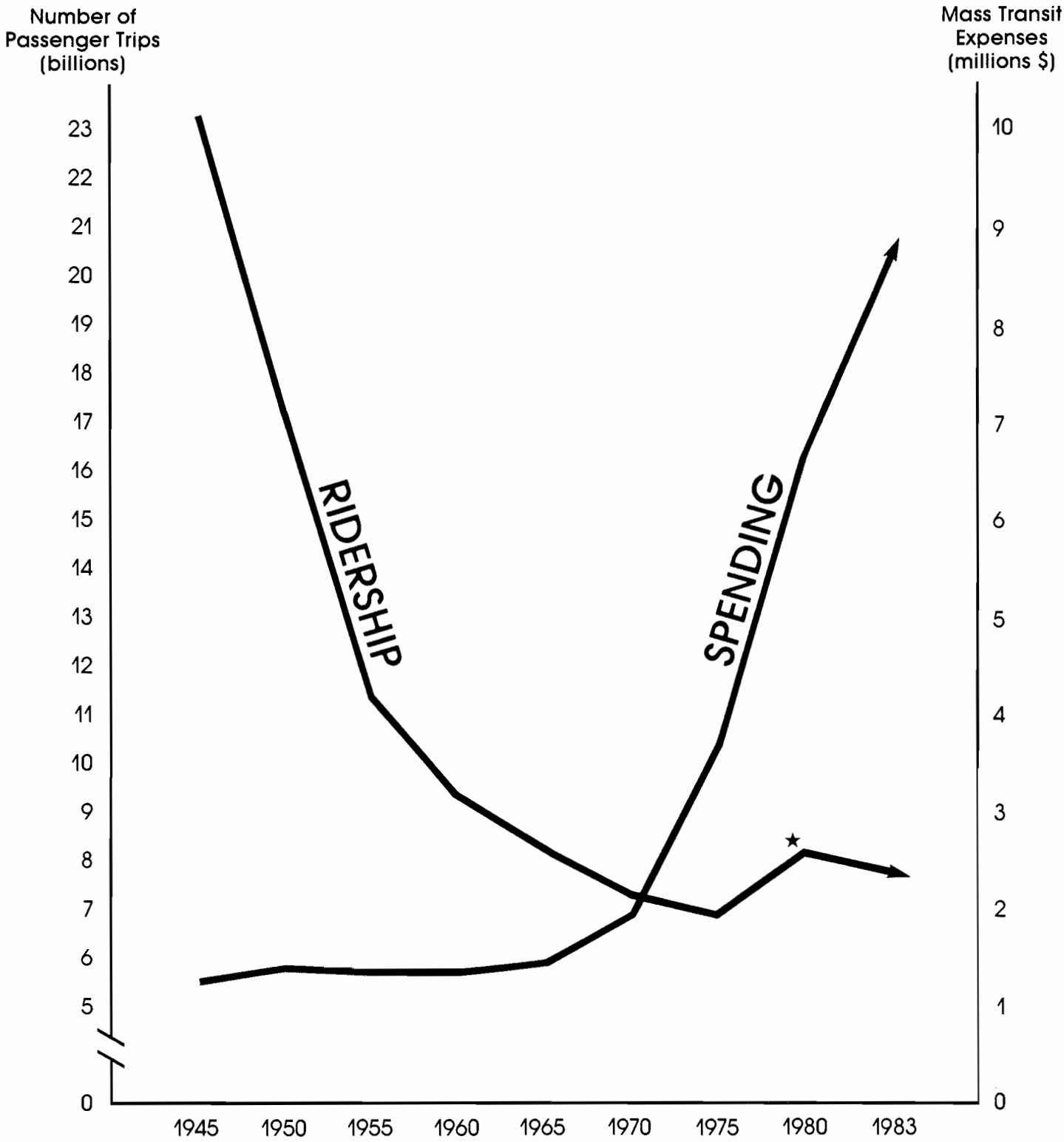
[1]Adam Smith, The Wealth of Nations, Book V, Chapter I.

[2]Portions of this report were originally presented at the American Enterprise Institute conference on "Private Innovations in Public Transit," in Washington D.C., June 6, 1986 and will appear in the conference proceedings.

U.S. URBAN MASS TRANSIT
Spending vs. Ridership



SOURCE: AMERICAN PUBLIC TRANSIT ASSOCIATION, TRANSIT FACT BOOK, 1985 EDITION.
★ NOTE: DEFINITION OF RIDERSHIP CHANGED BETWEEN 1975 AND 1980

2. **Failure to promote efficient use of urban road space and economical construction of new road space.** While public sector management - in almost all cities - has led to the wasteful and inefficient use of urban roads, government policies have discouraged the private development of roads as economic assets.

The purpose of this report is to explain why government policies in urban transportation have failed and why the choices of the marketplace usually are superior to the choices of transportation administrators in terms of cost, speed, and convenience to the traveler, and to suggest ways city governments can encourage the private sector to provide transportation services responsive to the needs and budgets of travelers.

Before embarking on these tasks, it is necessary to explain why the increasing use of the private automobile is not an irrational habit that unselfish, sensible people avoid.

WHY DO WE HAVE A ONE-TRAVELER-ONE-CAR TRANSPORTATION SYSTEM?

America has made an enormous investment in public transportation systems in its major cities. Since 1964 the federal government has spent billions of dollars refurbishing existing public transportation systems and financing the construction of new ones.

Despite this massive investment in public urban mass transit systems, the general public has shown an increasing tendency to use the private automobile instead.

- In 1951 public transportation accounted for more than 17 billion passenger rides.[3]
- By 1971 this figure had fallen below seven billion passenger rides.[4]
- Today, more than 90 percent of all motorized trips are made by private automobile rather than by public transportation.

Even when people forgo their own automobile and choose some other form of transportation, the mode of choice is the taxi:[5]

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[3]George W. Hilton, "The Rise and Fall of Monopolized Transit," in Charles A. Lave, ed., Urban Transit: The Private Challenge to Public Transportation (San Francisco: Pacific Institute for Public Policy Research, 1985), p. 45.

[4]Ibid.

[5]Sandra Rosenbloom, "The Taxi in the Urban Transport System," in Lave, Urban Transit, P. 181.

- Taxis carry more passengers each year than all U.S. bus and rail systems combined.

- Moreover, even among low- and moderate-income passengers, the taxi is used more frequently than public transporation.

In other words, when transportation in the U.S. is not one-traveler-in-a-private-car, it is more often than not one-passenger-in-a-taxi.

Consumer Preferences

Commentators frequently attribute the flight from public mass transit to an irrational "love affair with the automobile." They suggest that, if Americans only behaved sensibly, they would switch from private to public transport, at least for the journey to work. Nothing could be further from the truth.

America's "love affair with the automobile" is nothing more than a rational, sensible response to the changing society in which we live. Over most of the 20th century, the most important change that has occurred in our society is rising per capita income. In general, as family income increases there are increased demands to live in less densely populated neighborhoods, to undertake additional activities that involve travel, and to enjoy more privacy and personal comforts. The private automobile is a cheap and efficient way for people to accommodate many of these changes in consumer demands.[6]

- The automobile provides speed, convenience and flexibility for personal trips -- shopping, recreational rides, etc. -- which no system of public transport can match.

- The private automobile provides privacy and comforts (such as an assured seat) that often are not available on "shared" transport.

- The automobile provides transportation to and from work at a low incremental cost, and the more trips that are made, the lower the average cost per trip.

With rising incomes, we have purchased more and more cars. In this sense, Americans are no different from the citizens of any other country. It is a universal phenomenon that, as a country's per capita income increases, more private automobiles are purchased.

Neighborhoods. A key characteristic of American urban dwellers is their desire to live in low-density areas. Some urban planners disapprove of low-density living and refer to it disparagingly as "sprawl." Yet, despite a significant movement of the childless and the unmarried to city centers, a key pattern of American migration is still from city centers to suburbs, and from high-density areas (in the Northeast) to low-density ones (in the South and West).

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[6]See Lave, Urban Transit, p. xxi.

Suburban living cannot be efficiently served by fixed-route bus or rail lines, nor by large vehicles moving infrequently. Fast door-to-door service in low-density neighborhoods can be provided only by a transport mode flexible enough to give frequent service to small numbers of people.

Travel. People travel to increase the opportunities available to them. These include opportunities to live in pleasant surroundings, to work for desirable employers, to shop in desirable places, to be entertained, to meet friends, and to be educated. As people get wealthier they do not, as a rule, use their wealth to rearrange their activities to reduce travel. On the contrary, in the U.S., as in other societies, travel tends to increase with income.

The relationship between income and travel is illustrated by a study of travel patterns in Baltimore in 1977. On the average,[7]

- Families earning less than $5,000 per year traveled about 17 miles each day, while families earning more than $25,000 traveled about 55 miles each day.

- In other words, high-income families traveled almost four times as many miles each day as low-income families.

The increase in total distance traveled was due both to increases in average trip lengths and to increases in the numbers of trips per household.

Time. As people grow wealthier, their time becomes more valuable. This is because the opportunity cost of time increases with the individual's earning power. An individual who is capable of earning $100 an hour, sacrifices $100 for each hour of non-productive activity; whereas as an individual earning only $5 an hour sacrifices only $5 for each hour of non-productive activity. One way to reduce the cost of travel (in terms of the value of lost time) is to travel faster. In general, then, the higher one's income, the greater the importance that is attached to speedy travel. The Baltimore study shows that travel speed increases with family income.[8]

- Low-income families in Baltimore averaged speeds of about eight miles per hour in reaching their destinations, whereas high-income families averaged about 16 miles per hour.

- In other words, when they traveled, high-income families traveled at about twice the speed as low-income families.

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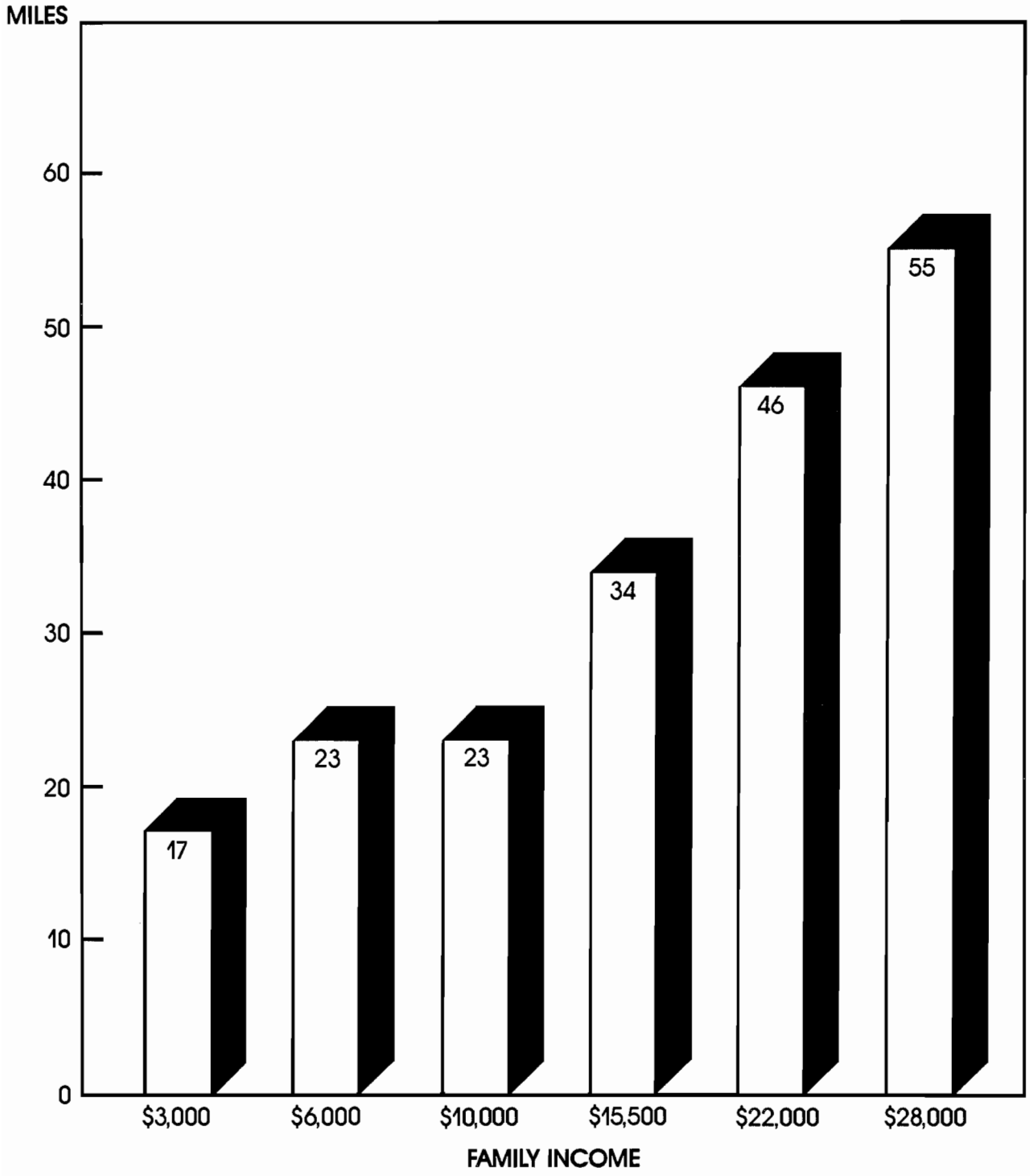
[7]Yacov Zahavi, "Travel Regularities in Baltimore, Washington, London and Reading." Technical Memorandum attached to Progress Report No. 8 on the UMOT Travel Model, presented to the U.S. Department of Transportation, Research and Special Programs Administration, Washington D.C., 1982.

[8]Ibid.

DAILY MILES TRAVELED
(Baltimore, 1977)



SOURCE: YACOV ZAHAVI, "TRAVEL REGULARITIES IN BALTIMORE, WASHINGTON, LONDON, AND READING." p.42.

How do higher-income travelers achieve higher rates of speed? By turning to the private automobile. Data from the Baltimore study show that,[9]

- The average door-to-door speed achieved in private automobiles (16 mph) is more than twice that of travel by bus (seven mph).

- As family income increases, and as travel increases, almost all of the increased travel is accounted for by use of automobiles.

It is to be expected, then, that as incomes rise in the future, people will tend to seek faster modes of travel to enable them to make the most of the new opportunities available to them. In fact, speed is recognized to be the main factor in the choice of travel mode not only in the U.S., but all over the world. It follows that the surest way to enable public transport to compete with the private car is to raise its door-to-door speed.

Privacy and Convenience. While speed is generally found to be the most significant factor in the choice of a method of travel, the ability to sit while traveling also is highly rated. Other factors influencing the choice of transportation include the fare charged by public vehicles, the ability to read while traveling, the ability to listen to a radio, the amount of privacy, and the physical surroundings inside the vehicle. These factors induce many -- but by no means all -- travelers to choose automobiles for urban travel.

America's so-called love affair with the automobile, therefore, is far from irrational. Indeed, considering people's preferences and the alternatives presented to them by traditional forms of public transportation, it is rational, sensible, understandable and inevitable that Americans will increasingly prefer the private automobile to public mass transit.

URBAN MASS TRANSIT: GOVERNMENT FAILURE

Any viable alternative to the one-traveler-one-car transportation system must successfully compete against the advantages of the owner-operated automobile. To compete successfully, such an alternative must offer consumers at least some of the advantages of the owner-operated vehicle or service at a cheaper price. Many such alternatives exist.

For example, taxis and minibuses can collect people from a group of nearby locations and travel nonstop to a clustered group of destinations. Indeed, unless travelers can conveniently park at their destinations, a shared taxi or minibus can provide faster service than even a private car. Minibuses and shared taxis also offer their patrons assured seats -- another high priority of travelers.

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[9] Ibid.

Yet, throughout most of the 20th century, and in most large U.S. cities even today, innovative entrepreneurs are forbidden by law from offering these kinds of transportation services to the public.

While preventing the marketplace from providing travelers with a transportation system that offers most of the advantages of owner-operated vehicle travel, transportation administrators offer (often at greatly subsidized prices) public systems that have few of the advantages of driving one's own car. In most places, it is simply impossible for conventional buses or railways to compete with the door-to-door speed and convenience of owner-operated vehicles. As a consequence, travelers in the U.S. choose private automobiles for most of their trips.

In modern times most public transportation systems have been a financial disaster. And in most cities the historical development of this disaster followed the same pattern: From competition in a reasonably free marketplace, city transportation systems have become increasingly centralized and bureaucratized. With more centralization and more bureaucracy, city planners increasingly tried to force upon the public a transportation system that they did not use. When private, franchised transportation monopolies could no longer earn a profit, they were taken over by city governments. When the cities could no longer afford the subsidies, they turned to the federal government. The federal government then poured even more money into systems which the public did not intend to use--all at considerable taxpayer expense.

Moving from Competition to Monopoly

From the vantage point of 1986, it is difficult to appreciate the fact that until World War II urban transportation consisted primarily of privately owned companies competing against each other. For example:[10]

- At one point Chicago had 30 private mass transport companies: 10 railroads in addition to various taxi, jitney and livery companies.
- Since then, these diverse companies have been consolidated under the Chicago Transit Authority -- a rigid system that has lost its vitality, its control over costs, and its ability to adapt to changes in living patterns.
- Today, most of Chicago's routes are the same as they were in the 1920s, despite major shifts in population.

One advantage of competition was that it allowed more efficient systems (using new technology) to replace less efficient systems (using old technology). Thus, by the turn of the century, the horse-drawn carriage had been replaced by the cable car, which was later replaced by the electric streetcar and then by buses.

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[10] See Christine M. Johnson and Milton Pikarsky, "Toward Fragmentation: The Evolution of Public Transportation in Chicago," in Lave, Urban Transit, pp. 49-77.

These changes were not made smoothly, however. Along the way, and in almost every city, special interest groups pressed for and eventually obtained franchise monopolies that protected them from competition, and therefore, from change.

Moving from Monopoly to Subsidized Monopoly

Even with their protected monopoly status, however, the transportation companies were unable to insulate themselves against the most threatening competitor of all: the privately owned and operated automobile. As the franchised monopolies become more rigid, less flexible, and more subject to political pressures, the public turned increasingly to the automobile as a necessary means of transportation. The result was that, despite their monopoly privileges, private transportation companies faced mounting losses, which eventually led to their takeover by government. Although the chain of events differed from city to city, the overall problem was nationwide in scope.

- In 1963, when most transportation systems were still privately owned and operated, the industry faced its first overall deficit of $880,000.[11]
- The following year, in 1964, Congress passed the Urban Mass Transit Act, which provides federal subsidies for urban mass transit systems.
- By 1968 the industry deficit had grown to $90 million.[12]
- By 1980 the deficit had exceeded $8 billion -- which meant that the average public transportation system was covering only 37 percent of its operating costs and none of its capital costs.[13]

As private deficits became city government deficits, cities increasingly turned to the federal government for help.

Federalizing the System

Since the establishment of the Urban Mass Transit Administration (UMTA), the federal government has played an increasingly important role in the finance and design of public transportation. It is a role that consistently undermines the ability of the transportation market to function as a real market.

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[11]Hilton, "The Rise and Fall of Monopolized Transit," in Lave, Urban Transit, p. 47.

[12]Charles A. Lave, "The Private Challenge to Public Transportation: An Overview," in Lave, Urban Transit, p. 7.

[13]D.H. Pickrell, "The Causes of Rising Transit Operating Deficits." Report prepared for the University Research and Training Program, Urban Mass Transit Administration, U.S. Department of Transportation, 1983.

Subsidizing Fares. One consequence of federal subsidies is that transportation fares do not reflect true costs.[14]

- Between 1967 and 1980 the consumer price index increased more than twice as fast as bus fares in American cities.
- As a result, bus fares in 1980 were one third lower (in real terms) than they were in 1967.

The gap between the fare charged and actual operating costs becomes greatest during periods of peak demand.[15]

- In most major cities there is no variation in fares between peak and off-peak periods.
- Yet operating costs for public systems are two to three times greater during the peak period than during the off-peak period.
- Interestingly, it is precisely during the peak period that private operators have the greatest cost advantage over public systems.

Inflating Costs. At the same time that fares are kept artificially low, numerous federal regulations cause costs to be artificially high. Among other things, the federal government has encouraged cities to provide uneconomical services, adopt unreasonably expensive designs and redesigns of transportation vehicles, and adopt policies that artificially inflate the wages of transit workers. For example, federal law essentially gives transit unions veto power over capital expenditures. This means that transit workers can insist on uneconomical systems and resist any labor-saving improvements.

- Overall, studies show that members of the Amalgamated Transit Union receive wages that are 18 percent higher than competitive rates.[16]
- In New York City subway stations, token booth attendants are paid twice as much as mid-level tellers in New York banks.[17]

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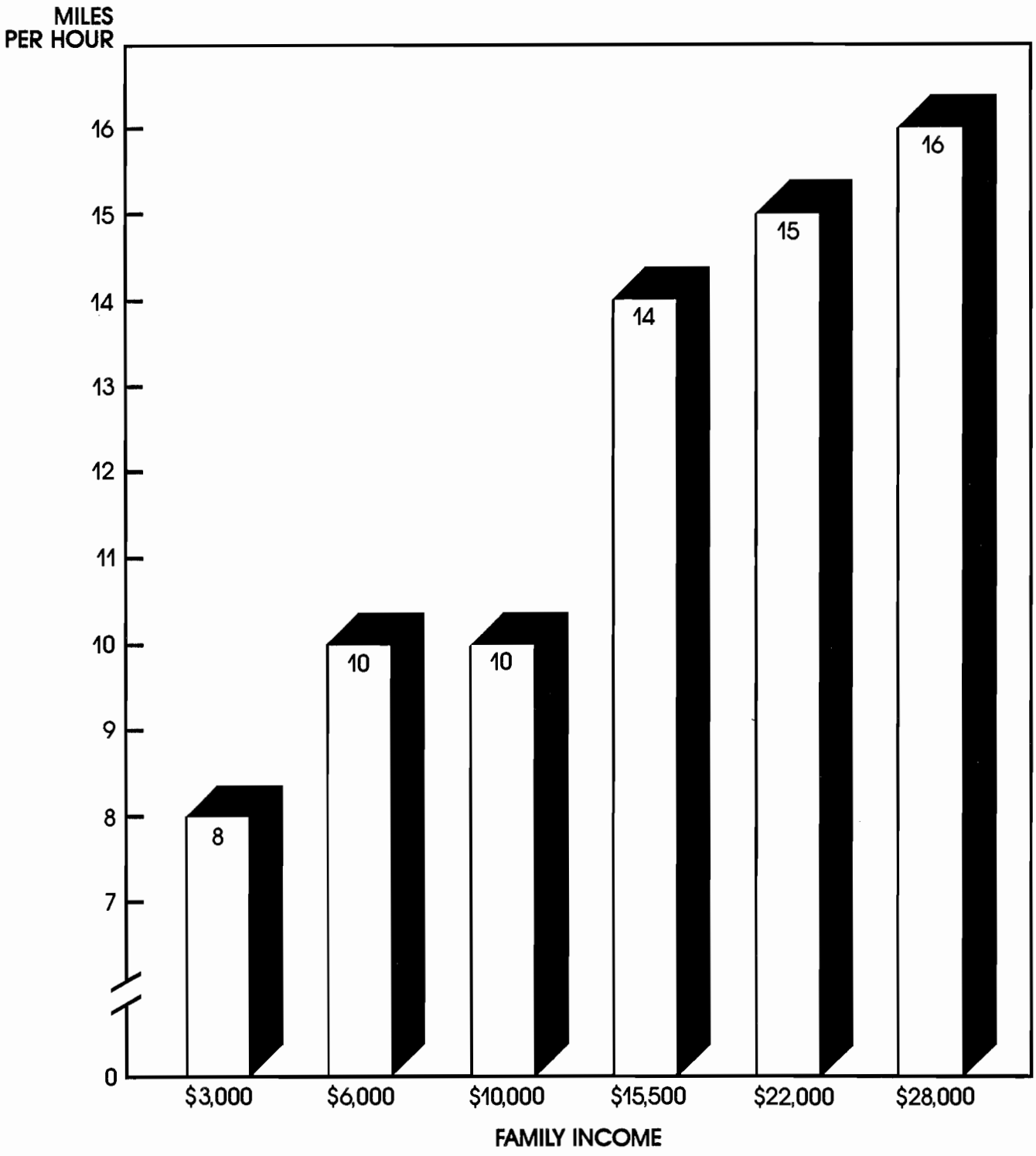
[14]Lave, "The Private Challenge to Urban Transportation," in Lave, Urban Transit, p. 11.

[15]See Edward K. Morlok and Philip A. Viton, "The Comparative Costs of Public and Private Providers of Mass Transit," in Lave, Urban Transit, pp. 233-253.

[16]Lave, "The Private Challenge to Urban Transportation," in Lave, Urban Transit, p. 48.

[17]Peter Samuel, "To revive New York's subways ... sell them ...," Reason magazine, May, 1982, pp. 23-32.

DOOR-TO-DOOR SPEED
(Baltimore, 1977)



SOURCE: YACOV ZAHAVI, "TRAVEL REGULARITIES IN BALTIMORE, WASHINGTON, LONDON, AND READING." p.42.

NOTE: DOOR-TO-DOOR SPEED IS THE AVERAGE TIME IT TAKES TO GET FROM THE PLACE OF ORIGIN TO THE PLACE OF DESTINATION DIVIDED BY THE NUMBER OF MILES TRAVELED.

The effects of these cost-increasing regulations is considerable. Consider that,[18]

- Since the UMTA program began, the average cost of providing a vehicle-mile of service has more than doubled.
- Many major cities now spend $50 or $60 per hour to operate a bus.

These are operating costs alone and do not include the cost of capital.

The Preference for Rail Over Bus

One of the strangest developments in modern transportation planning is the preference among planners at all levels for rail over bus. The premier city for rapid rail is, of course, New York City. If rapid rail transportation (which peaked in 1929) worked so well in New York City, why not replicate the experience elsewhere?

The reasons are several. In the first place, New York City has certain unique characteristics. It is very densely populated, it has a high degree of economic activity, and its land is extremely expensive. Only three other cities--Chicago, Philadelphia and Boston -- have similar geographical characteristics. Moreover, rapid rail systems in all four cities were built around the turn of the century, when motor technology was in its infancy.[19]

The Advantages of Bus over Rail. But in an age with new technological possibilities, "rapid transit" does not have to be rail transit. Nor does it appear that it should be. Busways can be built underground or above ground. Buses can provide as much passenger capacity as railways, and often at a lower cost. The capabilities of buses and busways were described by Martin Wohl, currently a professor at Carnegie-Mellon University and a recognized transportation expert. In a formal evaluation of the Washington public transit proposal prepared for the Secretary of Commerce, he wrote:[20]

> It should be emphasized that such an express bus operation is not in any respect comparable to the present-day bus operation on city streets; rather it would be a rapid transit operation just as free of congestion and traffic delays as a rapid rail transit system, and would differ from a rail transit system only in terms of manner of operation and vehicle size and form. Whereas a rail transit vehicle is restricted to operating on its private rights-of-way, the bus can operate both on its private rights-of-way and on suburban city streets for picking up passengers. The bus can

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[18]Lave, "The Private Challenge to Urban Transportation," in Lave, Urban Transit, p. 7.

[19]Ibid., pp. 42-43.

[20]Martin Wohl, "Evaluation of U.S. National Capital Transportation Agency Report," Report to Executive Office of the President, and Office of Science and Technology, 1963, pp. 90-91.

operate in a downtown subway just as rail transit vehicles can. And, furthermore, the general cost analysis conducted by the Rand Corporation indicates that express bus service, operating on private grade-separated rights-of-way on the line haul radials and downtown subways, and operating as suburban feeder buses on residential area city streets, will provide faster overall trip speeds and travel times at lower cost than will rapid rail transit.

The reasons for stressing the importance of considering other types of technologies, and particularly small vehicle transport, are many and compelling. The first reason is that the service (or replacement) lives of small vehicles are shorter, thus making it possible for them to take advantage of improvements in power, vehicle, or control/guidance units at less cost than for systems of longer life. (Buses have replacement lives in the range of 10 to 15 years, whereas rail transit trains have lives in the range of 25 to 35 years.)

Secondly, with a smaller unit vehicle capacity, bus service can be more nearly "tailored" to meet demand; also, if the same amount of capacity is to be provided, buses will provide such with higher frequency than rail transit trains.

This memo was written before the construction of the Washington, D.C., metro system. It was not publicized, and the advice went unheeded.

In addition to the higher door-to-door speeds and lower costs, buses and busways have two important advantages not mentioned by Martin Wohl. For one thing, their use allows for competition. A busway can be used by all kinds of buses, and the competition among them leads to lower consumer prices and lower operating costs. Railroads, on the other hand, are invariably operated as monopolies, and their costs have risen accordingly.

Another advantage of busways over railways is that busways have more flexibility -- they can be used by automobiles. During periods of peak travel, a busway can be reserved exclusively for buses, giving buses the same exclusive access enjoyed by trains and subways using rail. However, during off-peak periods, busways can be used by carpools, vans and by owner-operated automobiles.

Case Studies: New York City and Washington, D.C. The busway leading from New Jersey to the bus terminal in Manhattan is reserved exclusively for buses during the peak periods. During these times, between 400 and 500 buses per hour are using the lanes. At other times of day the lanes are open to other motor vehicle traffic. The busway created in the middle of the Shirley Highway leading into Washington, D.C., is open to carpools as well as buses.

Case Studies: Ottawa and Trinidad. There are not many busways overseas, but one is being built currently in Ottawa, Canada.[21] The system will comprise 22 miles of two-lane roadway, and is scheduled for completion by 1991. It will

[21] Van Wilkins, "Rapid No Rail," Bus World, Winter 1985-86, Vol. 6, No. 2.

have 26 stations, at which the roadway widens to four lanes, allowing some buses to stop without delaying the others. Some buses will travel non-stop the full length of the busway (or "transitway," to give it its formal title), while others will enter at ramps and then travel non-stop for the rest of the journey.

Diesel buses were selected over light rail primarily on the basis of cost. It was estimated that a "light rail" system would have cost about 50 percent more than a system of busways, and its annual operating costs would have been 20 percent higher. Another fact favoring the diesel buses was the desire to avoid rail/bus transfers which, it was calculated, would drive as many patrons back to their cars as a doubling of fares. The routes are being designed to enable the buses to circulate through suburban areas to pick up riders and then enter the busway for a fast run to the town center.

The Inter-American Bank made a loan to Trinidad partly to lengthen and improve the busway leading to its capital, Port of Spain. A feature worth noting is that this busway was built on a railroad right-of-way.

In fairness, it should be added that it is not only transportation planners who are partial to trains. The general public also perceives buses as providing second class service. This is probably due to the fact that the buses known to most travelers have to compete with other traffic for scarce road space, while trains travel on an exclusive track, undisturbed by other traffic. However, busways can provide an exclusive right-of-way for buses, comparable to the exclusive right-of-way enjoyed by trains. Furthermore, the bus industry has such a poor public image that few people realize that modern buses can match trains for comfort at a fraction of the cost.

Railway Systems and Economic Waste

When "rapid transit" rail systems have been constructed in modern times, the results have been financially disasterous. For every dollar collected in passenger fares by the Washington, D.C. or the San Francisco subway systems, taxpayers pay an additional dollar or so to cover the cost of the rides. These subsidies reflect only the taxpayer money that is used to operate railway systems. When the expenditures used to build the systems (capital costs) are included, the subsidies become enormous.

Case Study: Metrorail (Miami). Commonly referred to as "Metrofail" by Miamians, Metrorail was constructed at a cost of $1 billion. Yet it attracts a daily ridership of only 24,000 -- about one-eighth of its capacity. One of the reasons for low ridership is that Metrorail doesn't travel where a lot of people would like to go--for example, to the Orange Bowl, or to the airport, or to the beach. As a consequence of huge capital costs and low ridership,[22]

- The construction cost alone involves a subsidy of $20 for every trip made on the system.

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[22]Randy Fitzgerald, "Mass Transit vs. the Taxpayer," Reader's Digest, June, 1986, pp. 121-124.

- While he was director of the Office of Management and Budget, David Stockman calculated that it would have been cheaper for the federal government "to buy everybody who uses Metrorail a new car every five years for the next 50 years."

Case Study: People Mover (Detroit). Described by the Detroit News as "one of the most absurd transportation projects in American history," People Mover is scheduled to be operating in 1987. Although the original cost was estimated at $30 million, the project's budget is now $210 million and rising.[23]

- Based on federal estimates of likely ridership, the subsidy will come to at least $14,000 per person who uses the system regularly.

- This is enough to purchase every rider two economy cars and still have money left over for gas.

Case Study: Manhattan - Queens Subway Link (New York City). By the time the federal government suspended financing for this project in 1985, its total cost had mushroomed to $800 million. Yet it has carried not a single New Yorker from Manhattan to Queens.[24]

- If the project is ever completed, it is expected to attract only 1,700 passengers daily.

- The construction subsidy per trip will exceed $190 -- putting the system far ahead of Miami's Metrorail in the race for the nation's most costly mass transportation boondoggle.

More Projects; More Waste. These well-known disasters have not discouraged urban planners from following in their footsteps.[25]

- As of 1984, at least 33 rapid rail projects were being planned across the country.

- In some cases, the cost of these systems will reach $100 million per mile.

- The U.S. Department of Transportation estimates that the total cost of these systems will be $17 billion, and in most cases the cities involved are hoping the federal government will pick up the bulk of the price tag.

Some of the most expensive systems now on the planning board are listed in Table I.

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[23] Ibid.

[24] Ibid.

[25] Christopher Conte, "Cities Push for Costly Rail Systems, But Federal Aid Is Severely Limited," Wall Street Journal, February 16, 1984.

TABLE I

PLANS TO CONSTRUCT HIGH-PRICED RAILROADS

Costs of the 10 most expensive proposed urban-rail projects (projections as of 1984)

Dallas	$3.6 billion
Los Angeles	$3.3 billion
Washington, D.C.	$2.9 billion
Houston	$2.0 billion
Orange County, Calif.	$1.0 billion
Miami	$1.0 billion
Baltimore	$1.0 billion
New York	$ .5 billion
Cleveland	$ .5 billion
Atlanta	$ .5 billion

Source: Urban Mass Transportation Administration
Reprinted in the Wall Street Journal, February 16, 1984.

The Golden Fleece Award. In December, 1985, U.S. Senator William Proxmire gave his "Golden Fleece" award for the most wasteful use of tax money to the Urban Mass Transit Administration (UMTA). Over the past 22 years the agency has spent $43 billion on local transit systems, while the public has been using such systems with decreasing frequency. In a surprising twist, UMTA administrator Ralph Stanley became the first recipient of the award who actually stepped forward and accepted it. "My agency earned this award the old-fashioned way -- we paid for it," he said.[26]

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[26]"Winner Says Golden Fleece Wasn't Wasted," Washington Post, December 6, 1985.

Stanley added, however, that Congress deserves to share in the honor. Many attempts by the UMTA staff to reduce wasteful subsidies have been frustrated by Congressional oversight committees.[27]

It is apparent, both within UMTA and outside of it, that the public sector has been offering urban travelers 19th century technology at 20th century prices. And, despite the subsidized fares, American travelers have been abandoning mass transit in droves because it does not cater to their needs.

URBAN TRANSPORTATION: PRIVATE SECTOR SUCCESS

The conventional wisdom in North America and Europe is that urban public transportation has to be provided by a publicly owned or franchised monopoly, and that services have to be slow, congested and unprofitable. However, there are numerous examples, from cities large and small, and rich and poor, of public transportation systems that provide high-quality service, without subsidy, at prices that most people can afford.[28]

Minibuses in Hong Kong and Kuala Lumpur. Minibus services in Hong Kong and Kuala Lumpur were introduced to meet needs that the regular services would not satisfy. They have become so popular that authorities currently limit their numbers to 4,350 in Hong Kong and 400 in Kuala Lumpur to protect the regular, franchised services. As a consequence, the fortunate owners of licenses obtain substantial monopoly profits from them.

Route Associations in Buenos Aires and Calcutta. In some cities, individual bus owners form an association to operate a bus route. Each member of the association owns and operates his own bus, while the association has the responsibility of operating a particular route. These associations must compete against other public transport buses. They also have rules to structure the relationships between their members. (For example, buses have to keep to timetables so as not to "steal" customers from preceding and following buses.) In the case of Buenos Aires, virtually all city buses are operated by route associations that compete against one another. Buenos Aires is the only known example of a major city where bus services were "de-municipalized" and returned to the private sector; the results are generally considered to have been a spectacular success. In Calcutta, the private operators make enough profit to stay in business, while the public operating company, which charges the same fares and has the best routes, runs at a substantial deficit.

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[27] Ibid.

[28] For more detailed descriptions of these transportation systems, see Gabriel Roth and George Wynn, Free Enterprise Urban Transportation (New Brunswick: Transaction Books, 1982); and Sigurd Grava, "Locally Generated Transportation Modes of the Developing World," in "Urban Transportation Economics - Special Report 181," Washington, D.C.: National Academy of Sciences, Transportation Research Board, 1978, pp. 84-95.

The Jeepneys of Manila. The Jeepney services, which were first operated by surplus U.S. Army jeeps, offer an alternative service to that provided by the regular bus companies. Jeepneys usually are individually owned, although many are organized into route associations. Fares are at a level similar to those of the regular bus companies. But while the regular bus companies are in financial difficulty, many of the operators of the 28,000 licensed Jeepneys are anxious to get more licenses to expand services.

The Dolmus of Istanbul, and the Minibuses of Cairo. Similar in principle to the Jeepneys, the Dolmus have been established in Turkey for many years. Cairo's minibuses, on the other hand, developed recently and rapidly in the light of official encouragement.

School Buses in Singapore. In Singapore, where school buildings are used for separate morning and afternoon shifts, and where neither shift coincides with business hours, school bus operators are empowered to enter into monthly contracts with office workers to take them to work on a regular basis. Unscheduled, casual pickups are not allowed under this scheme, which gives each school bus operator six assured trips each day.[29] Another supplementary service in Singapore allows private operators to ply for hire along designated routes, but only during peak periods.

The Matatu of Nairobi. These minibuses, similar in some ways to those operating in Hong Kong and Kuala Lumpur, complement the services of the conventional bus company in peak periods and serve slum areas untouched by the regular service. Officials of the franchised company have said that were it not for the matatu, more conventional buses would have to be provided during peak periods, at a financial loss to the company.

The Bakassi of Khartoum. The Bakassi, which are converted Toyota pickup trucks, carry tens of thousands of passengers per day. In mid-1979, 3,300 of them were operating on the crowded streets of Khartoum. Although Bakassi owners must contend with gas rations and shortages of spare parts, business seems to be successful.

Shared Taxis in Belfast. "Black taxis" are operated by sectarian groups to enable their supporters to travel despite interruptions to the conventional services. They provide quick and low-cost transportation under crowded conditions (up to eight people per shared taxi). They are profitable, although fares are no higher than those charged by the bus company.

The Publicos of Puerto Rico. Puerto Rico's "Publicos" (shared taxis and minibuses) have been established for many years as a service that offers higher speeds than the bus, and at a higher fare. They have maintained their financial viability through the 1980s, while the conventional bus system has been unable to cover its costs without subsidy.

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[29] Similar services are provided in New Delhi--efficiently, but illegally--by about 2,000 full sized buses.

THE RISE AND FALL OF JITNEYS IN THE U.S.[30]

If private enterprise can meet the public demand for transportation with "shared rides" in small vehicles in other cities around the world, why hasn't this become the dominant form of transportation in the U.S.? The answer is that it might have, were it not for government regulation of the transportation market.

On July 1, 1914, L. P. Draper realized that he could use his Model T Ford as a "common carrier" in Los Angeles by obtaining a chauffer's license. He did so, and picked up prospective streetcar passengers on Broadway. He charged his customers a "jitney," which was slang for a nickel. In a short period Draper's experience was repeated again and again throughout the country. By 1915 there were about 62,000 jitneys in the U.S.

Municipal governments were unanimously hostile to this development. For one thing, city governments obtained important tax revenues from the franchise monopolies they had created to provide conventional mass transit. For another, the disorganized jitney owners proved no match for the well-organized, politically influential owners of the franchise monopolies.

- By the early 1920s jitneys had been virtually outlawed in the U.S.
- They were allowed to operate only on three streets--Mission Street in San Francisco, South Park Avenue in Chicago,[31] and Pacific Avenue in Atlantic City.
- Even on these streets jitneys were required to follow the same routes as the streetcars they competed against.

What would the market for urban transportation in the U.S. be like today if jitneys had been allowed to survive? No one can say for sure. But transportation economist George Hilton has suggested that:

> The jitneys....would have evolved into a competitive bus industry, characterized by individual ownership and operation. Such an industry, having negligible fixed capital and rapid entry and exit..would have adapted readily either to expanding or declining demand conditions.[32]

Certain jitney-like services are available in major U.S. cities today. Hotel vans that carry passengers to and from major airports are one example. Carpools, vanpools, commuter clubs and subscription bus services are other examples. In many cases, these developments have been encouraged by city governments. In

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[30]This section is largely based on Ross D. Ekert and George W. Hilton, "The Jitneys," Journal of Law and Economics, Vol. 15, 1972, pp. 293-325.

[31]Now Martin Luther King Drive.

[32]George Hilton, Federal Transit Subsidies," (Washington, D.C.: American Enterprise Institute, 1974), p. 110.

some cases, city governments actually contract with private firms to provide "shared ride" services.[33]

One of the most interesting examples of jitneys in the U.S. today is the market for illegal jitney services in Pittsburgh:[34]

- Although they operate outside of the law, there are probably twice as many illegal jitneys in Pittsburgh as there are legal taxis.
- Whereas taxis have regulated fares, jitney drivers bargain with passengers over price.
- A $2.60 taxi fare typically costs about $2.00 in a jitney.
- Whereas a taxi driver expects a tip, tipping is unheard of among jitneys.
- Whereas taxis generally are restricted to one-cab, one-passenger, jitneys frequently take groups of passengers to their destinations.
- Jitney drivers often perform services taxi drivers do not--they will deliver a package, drop off the laundry, escort a child and even give rides on credit.

Pittsburgh is not alone. Illegal jitneys also operate in Atlanta, Los Angeles, San Diego, Buffalo, Philadelphia and other cities as well. The phenomenon is largely a black phenomenon, however. In Pittsburgh, for example, most jitney drivers are black entrepreneurs. Their customers also are almost always black and typically have low-incomes.

It appears, then, that the market for illegal jitneys is one in which public officials look the other way. Meanwhile, hustling entrepreneurs bring transportation services to the poor and minorities -- people who have been priced out of the market for conventional taxi service by burdensome government regulations.

By and large, for most people in most places the market has not been allowed to work in a free and open manner. One of the virtues of an unregulated market is that it draws on the intelligence, creativity and innovative ability of hundreds of thousands of people. The insights and innovations of entrepreneurs competing for customers making informed choices invariably will provide better results than the decisions of a handful of bureaucrats and city planners. In an open market, shared van services to suburban American communities might offer coffee and soft drinks, daily newspapers, a car telephone and perhaps a great many other amenities no one has yet thought of.

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[33]Numerous case studies are described in Lave, Urban Transit and in John Weicher, ed., Private Innovations in Public Transit, (Washington, D.C.: American Enterprise Institute), forthcoming.

[34]Glenn Garvin, "Flouting the Law, Serving the Poor," Reason magazine, June/July, 1985, pp. 29-35.

PRIVATE SECTOR VS. PUBLIC SECTOR COSTS

Where they are allowed to operate, private transportation systems can attract ridership and provide services at about 50 to 60 percent of the cost of public transportation systems. For example,[35]

- In Cleveland, the cost to private operators per vehicle mile are about 40 percent lower than the cost of public operators.
- In Los Angeles private operators' costs are about 50 percent lower than the cost of public operators; in New York the cost is 47 percent lower.
- In Australia and the United Kingdom, private operators' costs are as much as 40 to 50 percent lower than the cost of public operators.

In other words, there is every reason to believe that substantial cost reductions can be achieved in urban transportation by relying on the private sector. Indeed, American cities increasingly are discovering that they can achieve substantial savings simply by contracting with the private sector for services. Take Phoenix, Arizona, for example.[36]

- Public officials in Phoenix discovered they could contract with a private taxi company at a cost of $16.69 per vehicle hour to provide services that cost $36.85 when Phoenix used its own buses.
- In low-density areas, Phoenix discovered it could contract with private minibus companies at a cost of $1.22 per vehicle mile to provide services that cost $2.86 when the city used its own vehicles.

Other cities have made similar discoveries:[37]

- Hammond, Indiana, has reduced the cost of local bus service by 50 percent by contracting with the private sector.
- Yolo County, California, also cut in half the cost of local bus service by contracting with a private company.
- Norfolk, Virginia, reduced its costs by more than 60 percent by private contracting.

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[35]Morlok and Viton, "The Comparative Costs of Public and Private Providers of Mass Transit," in Lave, Urban Transit, Table 10-2, p. 236.

[36]Lave, "The Private Challenge to Public Transportation," in Lave, Urban Transit, pp. 14-15.

[37]Morlok and Viton, "The Comparative Costs of Public and Private Providers of Mass Transit," in Lave, Urban Transit, Table 10-3, p. 237.

HOW PRIVATE TRANSPORTATION SYSTEMS PROVIDE BETTER SERVICES AT LOWER COSTS

Why is it that the private sector is able to provide higher quality transportation at a lower cost than public sector transportation? Recent studies have identified four key characteristics of efficient transportation systems: (1) private ownership, (2) use of small vehicles, (3) use of small private firms and (4) use of route associations.[38]

Private Ownership. Private, owner-managers face much better incentives to keep costs down and quality up than their public sector counterparts. The owner-managers of private companies tend to bear the full costs of their bad decisions and reap the full benefits of their good decisions. Wasteful decisions on the part of the private owner mean lower profits, and, therefore less income. Efficient decisions lead to higher profits and more income. Public officials, by contrast, face much weaker incentives to avoid waste and pursue efficiency. The costs of wasteful decisions by elected officials are imposed on millions of taxpayers, not on the politicians who make the decisions, nor on the administrators who implement them.

Private operators also have another advantage over their public sector counterparts. They do not have to get re-elected. By contrast, the decisions of public officials invariably are distorted by political considerations. For example, negotiations between city officials and transportation workers are rarely arms-length negotiations. The transportation workers (and their families and relatives) help elect the very officials with whom they are bargaining.

Finally, where private ownership is combined with competition, market forces reward entrepreneurs who are the most efficient managers and penalize those who are the least efficient. Managers of public monopolies and franchise monopolies do not have their managerial skills tested by the competitive pressures of the marketplace.

Use of Small Vehicles. Although transportation administrators tend to prefer large vehicles to small ones, the evidence indicates that small vehicles often are more cost-effective. In general, the capital cost per seat seems to increase with the size of the vehicle. For example, operators in San Juan, Puerto Rico, can expect to pay $17,000 for a minibus seating 17 people, but $140,000 for a full-sized bus seating 50. Thus, a full-sized bus can cost almost three times as much per unit of passenger capacity as a minibus. The same pattern also applies to a rail car: A vehicle seating, say, 150 passengers, can easily cost $1 million. The main reason for the lower cost of small vehicles (e.g. minibuses) is that they can be mass produced and bought "off the shelf," while large ones tend to be made to special order.

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[38] See Sigurd Grava, op. cit.; and A. A. Walters, "Costs and Scale of Bus Services," World Bank Staff Working Paper No. 325, Washington D.C., 1979.

There is a second reason favoring the small bus. On most routes, small buses provide more frequent service than do large ones. This means there is less waiting time per passenger. A monopoly operator who has to bear the costs of his crew but not the waiting time of his customers might not consider this factor. Hence the preference of monopoly operators for big vehicles. However, where competition is allowed, those who provide public transportation have to respond to the needs of the passengers, most of whom dislike waiting for buses. To reduce waiting it is necessary to use small vehicles providing a frequent service. It is significant that when the private bus operators took over the municipal service in Buenos Aires in 1962, one of their first actions was to replace the large municipal buses with smaller ones. More generally, whenever a private operator has the freedom to choose the size of his vehicle he generally chooses something less than a full-sized bus. The small bus has other advantages as well. It holds fewer passengers and it is easier to fill. It tends to stop less frequently and for shorter periods than large buses. And, being more maneuverable, it often can make its way more quickly along congested roads.

Use of Small Firms. There is a lot of evidence that large bus fleets incur financial losses under the same conditions that small operators make profits. Although operators the world over are reluctant to admit to making profits, the pressures to obtain permits to provide service and the prices at which permits in some cities change hands (or are hired out) are sure indications of profitability.

The reasons for the financial viability of small transportation firms, be they taxis or buses, are well-known and typical of other types of small businesses in the service sector. Small owners are willing to work longer and less regular hours than a bus driver in a large fleet. They clean their own vehicles, or enlist the help of family members. They appreciate the need for regular vehicle maintenance. They do not have their own depots, but service their vehicles on the street or at a local garage. Their record-keeping is minimal. They make a greater effort to collect fares from passengers and to ensure that the amounts collected do not get lost along the way. An extra driver can be employed if two shifts a day have to run. Additional equipment, such as two-way radio service, can increase earnings without owners having to relinquish control of their vehicle.

In passenger transportation, the basic operating unit is the vehicle, and, as the taxi business proves, it is possible for the owner of even one vehicle to operate it successfully at a profit. Indeed, evidence from cities in Asia and Latin America suggests that it is possible for a group of people to own a small bus and operate it at a profit.

Use of Route Associations. A high level of service over a wide area can be provided by small firms, as long as the organizational structure of the industry is appropriate. Taxis are a case in point. While taxis can be operated either as one-person firms or in large fleets, there is no need for any formal coordination to achieve an acceptable level of service.

The individual unit does, however, have to work within an appropriate organizational framework. For example, a taxi looking for business has to be recognized by the public as being available for hire. If it is a vehicle intended to carry more than one person, its destination has to be clearly displayed. It

also is important for passengers to know how much the fare is and where it stops along the route. Some of these features are provided by route associations which are found in many cities in Asia, Africa and Latin America, as well as in some parts of the U.S. and Europe.

The essence of a route association is that each vehicle remains under the control of its owner or owners with regard to driving and maintenance. What is shared is the route. The members of the association ply a specified route in conjunction with others, thus offering travelers a frequent service. Fares are usually fixed by the association, but not always: In Hong Kong and Instanbul, for example, higher fares are charged in peak periods when demand is higher and traffic congestion is more acute. (A similar system exists for Washington, D.C., taxis, which are allowed to charge higher fares in peak periods than in off-peak ones). The revenues in some associations are retained by the individual members, and in others (e.g. in New Jersey), pooled among the members.

To the extent that route associations provide peak period services, they can reduce the amount of capacity that conventional services need for use only in peak periods, and can thus ease their financial burdens. For, as noted earlier, buses used only in the peak period tend to be heavy loss-makers.

It may be concluded that the private sector can provide successful, profitable transportation services if given the opportunity to do so. As we have seen, examples of private sector success in urban transportation abound in our own history. They also can be found today in a few cities around the country as well as in some cities abroad. To take advantage of the private sector alternative, local governments must be willing to remove current restrictions on private common carriers. They must be willing to allow freedom of entry into the transportation marketplace, which in turn would allow consumers to reap the full benefits of competition and free enterprise.

EFFICIENT USE OF EXISTING ROAD SPACE AND EFFICIENT PROVISION OF NEW ROAD SPACE

Can the private sector remedy the government's failure to deal economically with urban road space? If given the opportunity, would the private sector do a better job of allocating existing road space among competing users? Could it provide additional road capacity?

Unlike the public sector, which can rely on the inexhaustible purse of government to meet losses, the private sector cannot operate without profit. In order to provide infrastructure, it has to be paid. But this requirement conflicts with the ideal of the "freeway." Not only do many road-users believe that roads should be open to all without payment at the point of use, most believe that the government is obligated to provide enough road capacity to meet all demands at all times in all places -- at no extra charge! This is an approach that the private sector cannot follow. If the private sector provides an expensive highway, it has to meet all of the costs of that highway. If it has to buy land for which there are alternative uses, it has to bid for that land in the market place. And if it cannot recover the full costs, it cannot build the roads.

The private sector, therefore, faces big problems in providing roads. But there might be big benefits also. For example, one of the commonly cited disadvantages of the one-traveler-one-car transportation system is that in each vehicle most of the seats are empty. If we could raise automobile occupancy from its current level of about 1.3 people per car to two people per car, we could reduce by one-third the number of cars in use, the amount of gasoline consumed, and the amount paid in parking fees. In addition, we could enjoy substantial benefits in terms of reduced pollution and reduced congestion on major urban thoroughfares. An obvious way to increase vehicle occupancy is to charge higher prices for the use of congested roads. What would this involve?

Charging Prices for the Use of Roads

Except for a few toll roads here and there, drivers do not pay directly for the use of public roads. The relationship between road usage and the cost to drivers is indirect. We contribute to road maintenance and road construction through a tax on gasoline. What this means in practice is that there is no relationship between the price paid and the direction of travel, the place of travel, and the time of day that the road is used.

With telephone service and (increasingly with the use of electricity) higher prices during peak usage periods reflect the greater value of the service when it is in greatest demand, as well as the higher cost of providing the service at that time. Such is not the case with roads. We ration road usage not by differential prices but by deterioration in the quality of service. That is, during the peak periods there is more congestion, more wasted time, and greater risk of injury or death from accidents.[39]

This has unfortunate consequences for drivers. It means that individuals cannot reduce the high costs of using roads during rush-hours -- e.g. the frustration, the waiting, the risk of accident -- by taking on additional passengers.

If the use of our public roads were rationed by price, rather than by congestion, travelers could substantially reduce the money cost of travel by using shared rides with several people occupying a single vehicle. Under the current system, they do not have strong incentives to choose this option.[40]

The Benefits of Rationing Road Use by Prices. Suppose you are late for an important business meeting and stuck in rush-hour traffic. The meeting is so important you would be willing to pay as much as $1,000 to get to it quickly. Yet there are 1,000 cars sitting in front of you. You are willing to pay each driver in front of you $1 to exchange places in line. Suppose each of those drivers is willing to accept the minor inconvenience of allowing you to pass in return for

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[39]See Hilton, "The Rise and Fall of Monopolized Transit," in Lave, Urban Transit, p. 41.

[40]Economists have long known about the social benefits of charging prices for road usage. For one of the earliest analyses, see Frank H. Knight, "Some Fallacies in the Interpretation of Social Cost," The Quarterly Journal of Economics, August, 1924, p. 584.

$1. In principle, there is an opportunity for 1,000 mutually beneficial exchanges. In practice, however, such exchanges are a virtual impossibility.

One of the most remarkable features of markets and prices is that they allow us to get desirable results that could never be achieved if every participant in the market had to bargain individually with every other participant.

In general, the best seats at the theater, at sports stadiums, on airlines and in other settings cost about the same to construct as the worst seats. Yet the best seats frequently are sold at much higher prices. Indeed, it is not unusual for people enjoying the best seats to pay prices that greatly exceed the average cost of providing these seats, while people sitting in the worst sections may be paying prices that are well below the average cost.

One way to think of these arrangements is that people occupying the least-desirable seats are able to pay lower prices precisely because people occupying the most desirable seats are willing to pay more. It is as if people sitting in first class pay money to the people sitting in coach class in return for the privilege of sitting in better seats. In general, the more people are willing to pay to sit in first class, the lower the prices can be in the coach class.

A similar principle applies to the use of roads. Imagine a four-lane highway with a different price charged for use of each lane. In principle, the cost of constructing each of the lanes is the same. But in the first lane, the toll is set at a very high rate -- for the explicit purpose of discouraging its use in order to insure that motorists who do use it are able to travel very fast. In the second lane, a lower price is charged, and because the lower price attracts more motorists the average speed is slower than in the first lane. The prices charged, therefore, range from a very high price (in the first lane) for very quick travel to a very low price (in the fourth lane) for the slowest travel speed. These prices, of course, could vary according to time of day and day of the week.

For example, prices on all lanes would be higher during rush-hours than during the off-peak periods. They might be higher on week days than on weekends, and so forth.

There are several advantages to such a system. First, the establishment of prices would remind people that traveling on a highway, especially during periods of peak demand, involves a social cost. A motorist using a public road is not merely using a pavement, but also is impeding the progress of other drivers. Since road use imposes a social cost on others, people should not be able to do so without making a financial sacrifice. Second, such a system would allow people who place a very high value on their time, or who have an urgent need to reach their destination, to "purchase" highway space away from people whose time is less valuable or whose need for quick travel is less urgent. In other words, motorists would be faced with the tradeoff between money and speed. The faster one wants to go in order to reach one's destination, the higher the price.

Similarly, motorists also would face a tradeoff between money and rush-hour travel. Travel during rush hour would cost considerably more than travel at other times. In this way we enable road space to go to its highest valued uses.

Finally, where people face prices for road use they face financial incentives to economize on travel costs. By taking on additional passengers, vehicle operators and their travel companions can make travel in the "fast lane" more affordable. Thus, strong financial incentives can be created to encourage shared riding.

New Technology for Charging Road-Use Fees. One of the traditional objections to charging tolls for highway use is that toll booths and toll collections create bottlenecks and additional time delays in already congested traffic. Another objection to charging different prices for travel in different lanes is that such a system is difficult and costly to monitor and enforce with traditional technology. Fortunately, new, relatively inexpensive technology makes these objections less valid.

One example, called Electronic Road Pricing (ERP), is similar in concept to a laser reader at a supermarket counter. A small device (which can be attached to the underside of a vehicle in less than five minutes) emits a signal that is picked up and "read" by monitoring devices placed on the side of the road. Each vehicle has a unique electronic number that identifies it, and the monitoring devices read the number and note the time of day and place of travel. At the end of the month, the vehicle owner receives a statement of charges similar to a credit card bill.

This new system would make charging for road use about as inobtrusive as the way we currently are billed for use of our telephones. What's more, it is relatively inexpensive to install and it works! Although it is not currently used there, Hong Kong established a pilot project to evaluate its feasibility. The system satisfied all the operational demands made on it.[41]

The Problem of Monopoly. While allocation of scarce resources by price may be preferable to their allocation by administrative decree, there is a problem if the allocating agency has a monopoly over the scarce resource. Would it not be tempted to restrict the supply in order to extract monopoly profits from its captive customers? If road pricing were allowed, would not the government agency involved be tempted to avoid road investment in order to maximize the revenues from congested roads?

A market economy deals with this difficulty by allowing other suppliers to compete in the provision of the scarce resource. While road pricing by government would be an attractive concept if the prices charged were designed to maximize the usefulness of the road system, not all governments can be trusted to charge such prices. They are more likely to overcharge (as in the case of Singapore, where road-users are required to purchase high-priced windshield stickers to enter the city center) or to undercharge (as in the case of parking meters in most cities, which are priced too low to allow spaces to be readily

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[41] See Ian Catling and Gabriel Roth, "Electronic Road Pricing in Hong Kong: An Opportunity for Road Privatization?", Proceedings of the international conference on "Roles of Private Enterprise and Market Processes in the Financing and Provision of Roads," Transportation Research Board, National Research Council, Washington, D.C., 1986.

found). Recent experience in Hong Kong suggests that road pricing without private sector participation may be politically unacceptable in practice as well as in theory.

Case Study: Hong Kong. Although Hong Kong is ruled by a government committed to free enterprise, and although the principles of the market are well understood there, the road pricing methodology on which the technical pilot project was based was not designed to facilitate a market in road space but to restrain the use of congested roads. The idea was received without enthusiasm in the territory, and the introduction of Electronic Road Pricing has been postponed indefinitely. Road users objected to: a) paying more taxes, and b) having their journeys monitored by the government.

The second objection might be met by giving motorists the option of receiving unitemized bills. The first is more difficult, in view of the fact that the fiscal system of Hong Kong (like that of the United Kingdom) recognizes no formal connection between the amounts paid in road-user taxes and expenditures on roads. In its proposal for ERP, the Hong Kong government did in fact propose a reduction in vehicle licensing fees, but this did not satisfy the objectors, who feared that they could be easily raised in the future.

The Hong Kong authorities might have been more successful in gaining the confidence of road-users had they proposed to introduce ERP in conjunction with a reorganization of road finances in accordance with the principles used to price and finance other scarce resources, such as electricity and telephone services. Private road companies could be invited to bid for the right to maintain existing roads and to charge market-clearing prices for their use.

Furthermore, the ERP technology developed in Hong Kong could allow private suppliers, independent of government, to add road links (such as the Cross Harbour Tunnel), install their own pricing loops, and collect payment by means of monthly billings, as do the private long-distance telephone companies in the U.S. ERP offers the possibility of the private sector providing not only vehicles, but also road space on which to run them. And this possibility, if allowed, would give road users the strongest defense against the authorities collecting excessive revenues from a road network restricted in size. The power of the private sector to provide alternative road links at a profit, would limit the power of the government to extract monopoly profits from its own network.

This does not mean that road users should never be taxed for the benefit of general revenues. Such taxes can be imposed separately and explicitly, as they often are on telephone and electricity bills.

Nor does this mean that private road provision would not involve problems. There would be plenty. How would the land be acquired? Who would determine the standards of private roads? Would the owners of such roads be entitled to exclude certain types of vehicles (e.g. trucks) or drivers (e.g. those with poor safety records)? But these questions -- which cannot be pursued here -- may be easier to deal with than the problems of urban transport under present policies, especially in countries that are poorer and less developed than the U.S.

Private Provision of the Right-of-Way

That the private sector can provide rights-of-way for transportation may be seen from the private urban rail lines that were provided in numerous cities in the 19th century. The first line is reported to have been established in New York in 1832. It was for horse-drawn omnibuses. However, the omnibuses were slow and environmentally polluting, so the private sector made many attempts to replace the horse with mechanical power. One solution was to use steam trains on separate rights-of-way. In 1863 underground steam trains were run in London, and in 1868 similar trains were used in New York but at an elevated level. In all of these cases, the owners of the track controlled the vehicles that ran on them and were remunerated from the fares paid by passengers.

It was not only for trains that the private sector provided rights-of-way. In the 1960s a bus company, Momin Motors in Dhaka, the capital of Bangladesh, provided a road about seven miles long for its buses. As in the case of the private rail lines, the road was paid for out of the passenger fares. The company was able to get paid for its investment by virtue of its private ownership of the franchise and the vehicles. The road has since been absorbed into the highway network of Bangladesh, but its construction provides a vivid illustration of the private provision of a public road.

In all major cities, most roads are owned and maintained by government and made available to the public at no extra charge. As a result, the private ownership of urban roads does not seem to be a practical proposition in the near future. However, even in the short term, the private sector could be involved in two ways: a) the widening of congested freeways, and b) the conversion of underused railway rights-of-way into roads or busways.

Widening of Congested Freeways

To encourage the use of public transport and the formation of car pools, highway authorities in many areas, including Los Angeles, New York City, San Francisco and Washington, D.C., provide "HOV (high-occupancy vehicles) lanes." During peak periods, these lanes are open only to buses and high-occupancy vehicles. The precise definition of high-occupancy varies from area to area; on the East Coast it is usually three or four people per vehicle, while in California two people per vehicle is more common.

The designation of traffic lanes for HOVs represents an administrative approach to making better use of road space by increasing vehicle occupancy. Could the same objective be achieved by a market approach? Would a market approach have advantages?

A market approach would involve allocating road space not to vehicles carrying a designated number of people, but to vehicles whose owners agree to pay a specified entrance fee or toll. It would have a number of advantages: First, travelers whose needs are urgent -- such as doctors on call -- could use the priority lanes without having to seek companions to make up a HOV. Second, such a system would produce revenues, which would indicate the intensity of demand for additional road space and provide a source of funds for its construction.

That such an arrangement is technically possible is proven by the success of the toll road recently opened alongside the Dulles International Airport Access Road in the Washington, D.C. area. The original road was opened in 1962 and provided access only to Dulles Airport. People who lived in neighborhoods (such as Reston, Virginia) alongside that road were not allowed to use it for the journey to Washington, D.C., without traveling first to Dulles Airport. The new toll road alongside the airport access road was built to provide direct access to Washington, D.C. from such neighborhoods. It proved to be so successful that, although opened in 1984, it is already congested in peak periods and is to be expanded by the provision of additional toll lanes. Furthermore, plans are underway to build and operate a 10-mile, for-profit extension to the Dulles Toll Road.[42]

There may well be other congested arterial streets that could be expanded on a similar basis. Or under-utilized railroad rights-of-way could be converted to urban toll roads. The toll collection itself need not be by the old-fashioned method of throwing coins into boxes. The "electronic number plates", discussed above, could be introduced on such roads.

The provision of additional capacity for road-users prepared to pay additional fees would benefit all concerned. Those who prefer to pay to utilize the new capacity would be better off; otherwise they would not pay. Those not willing to pay would benefit from reduced congestion on the old lanes. And, those who provide the new capacity would benefit if their investment brings in sufficient revenues to cover costs and generate a profit.

Conversion of Under-used Railway Lines

There must be hundreds of miles of abandoned urban railway lines in the U.S. that could be converted into busways. An example is an abandoned railroad route that could be converted into a busway connecting Silver Spring, Maryland, with Bethesda, Maryland, in the suburbs of Washington, D.C. Currently plans are underway to make such a conversion.

Can the private sector be relied upon to make similar conversions in cities around the country? A major problem is that private developers must recoup their investment in the form of fees charged for the use of the right-of-way. Meanwhile the major competitor (city government) makes its rights-of-way available to travelers for "free." To create a situation where patrons of private busways must pay user fees while the patrons of public, competing roadways do not pay user fees, makes neither political nor economic sense.

Is there a way of placing public and private rights-of-way on equal footing--to create a level playing field that makes it attractive for the private sector to enter the market and compete? One way to move in this direction is a policy we already have discussed: charging tolls for the use of public roads. If this proves politically impossible, another way is for city governments to compensate the providers of privately developed busways based upon their use.

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[42] Washington Post, November 8, 1986.

This arrangement reflects the proposition that a private road owner should receive at least as much compensation as government now receives for its own road use, e.g. the taxes on the fuel consumed on the busway. Under the new system, the number of vehicles (or passengers) using the busway would be determined from regular or sample counts. If such payments were insufficient to attract private capital, they could be supplemented by a lump sum, or by annual subsidies determined by a bidding process. For example, a city could invite bids from private firms to convert an unused railway into a busway. The city could offer to pay the private entrepreneur a specified amount for each passenger (or passenger-mile, or for each vehicle or vehicle-mile), and could give the contract to the contractor who could supply the facility at the lowest cost. Maintenance would be the responsibility of the private supplier, who would, of course, suffer financially if poor maintenance cut down use of the busway. The busway would be open to all buses and minibuses and (if there was spare capacity) possibly to carpools or other high-occupancy vehicles.

TRANSPORTATION FOR LOW-INCOME PASSENGERS

One of the most common justifications for publicly owned and operated transportation systems is that low-income passengers cannot afford to pay the full cost of their travel. In the private marketplace, producers cannot provide services unless they can charge prices that cover the full cost of their operations. Government, by contrast, can charge prices well below costs, and make up the difference through taxpayer subsidies. Thus, the public sector alternative makes travel more affordable for low-income travelers.

Even if there is a good reason for government to subsidize transportation for some groups of people, there is no reason why transportation services must be owned and operated by government. Other, better alternatives exist for accomplishing this objective.

For example, one way to achieve low-cost transportation without government ownership and operation is to contract with private firms to provide the service. As we have seen, a number of cities contract with private firms to provide transportation services to the elderly and handicapped. In London, whole bus routes are contracted out to private firms after a bidding process in which private companies are allowed to bid against London's public transit systems.

In addition, where there are compelling reasons for subsidizing certain groups of travelers, the subsidies can be given directly to the class of travelers for whom the subsidy is deemed desirable rather than by offering the same subsidy to all travelers, regardless of need or financial resources. A number of U.S. cities, for example, provide elderly, handicapped and low-income citizens with travel vouchers. These vouchers can be used for rides in private taxi cabs and other vehicles. The vehicle owner can redeem the voucher for money from the city

government. Vouchers are similar in principle to foodstamps. They pinpoint the subsidy to those who really need it, without interfering with private provision of the service and without preventing competition in the private marketplace.[43]

CONCLUSION

There are private sector alternatives in urban transportation. They can provide services at lower cost than public mass transit systems, and can adapt readily to the changing needs and preferences of the traveling public. To the degree that they succeed in attracting passengers into shared-ride vehicles, private sector alternatives are likely to be far more successful than public mass transit systems in reducing congestion on our highways.

Private provision of urban roads is more difficult than the provision of transportation services. But even in this area, public officials could encourage private sector alternatives by rationing public road use by prices rather than by congestion, by creating special lanes for high-occupancy vehicles, and by encouraging the private sector to develop and maintain additional rights-of-way.

NOTE: Nothing written here should be construed as necessarily reflecting the views of the National Center for Policy Analysis or of The Services Group, or as an attempt to aid or hinder the passage of any bill before Congress.

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[43]See Ronald F. Kirby, "Targeting Money Effectively: User-Side Transportation Subsidies," Journal of Contemporary Studies, Vol. IV., No. 2, Spring, 1981.

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