BY THE COMPTROLLER GENERAL

Report To The Congress

OF THE UNITED STATES

8829

Amtrak's Economic Impact On The Intercity Bus Industry

The Amtrak Improvement Act of 1978--Public Law 95-421, Section 6--provides that the Comptroller General shall, in consultation with the Secretary of Transportation and the Interstate Commerce Commission, conduct a study of the economic relationship of the fare structure of the National Railroad Passenger Corporation (Amtrak) to the intercity bus industry.

This study addresses the specific issue mentioned in the act but also emphasizes the complexity of the situation facing the intercity bus industry. Competition by Amtrak is just one of the problems the bus industry faces. Long-term socioeconomic trends and competition from airlines and automobiles have steadily decreased trains' and buses' share of the intercity transportation market.

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COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON, D.C. 20548

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To the President of the Senate and the
Speaker of the House of Representatives

This report was required by the Amtrak Improvement Act of 1978--Public Law 95-421, Section 6--which provides that the Comptroller General shall, in consultation witn the Secretary of Transportation and the Interstate Commerce Commission, conduct a study of the economic relationship of the fare structure of the National Railroad Passenger Corporation (Amtrak) to the intercity bus industry.

The report (1) discusses how federally subsidized Amtrak has attracted passengers from intercity buses; (2) describes how Amtrak's fare cutting in prime markets, such as the Northeast Corridor, has eliminated the fare differential between bus and rail travel; (3) estimates the impact on bus company ridership if Amtrak were eliminated or scaled down; and (4) discusses the regulatory environment and the long-term socioeconomic trends which have contributed to the financial problems of the intercity bus industry.

Copies of this report are being sent to the Director, Office of Management and Budget; the Secretary, Department of Transportation; the Chairman, Interstate Commerce Commission; the president of Amtrak; and the chairmen of transportation-related congressional committees.

Comptroller General
of the United States

D I G E S T

The intercity bus industry competes with Amtrak for passengers, a rivalry made possible by the large Federal subsidies Amtrak receives. Competition from airlines and automobiles, however, has had a more significant long-term effect on buses as well as trains. Consequently, trains' and buses' combined share of the intercity transportation market has steadily decreased in recent years.

There is little question that subsidized Amtrak service has attracted customers that would have otherwise ridden buses. Measuring this effect, however, is extremely difficult because:

--The market for intercity transportation is complex. On some routes, there is little competition between buses and trains. The quality of service (e.g., scheduling, speed, comfort, and the convenience of terminals) varies greatly from route to route. These differences are at least as important as relative prices.

--The data required for a comprehensive study are lacking, as is evidenced by the absence of any definitive economic study of how rail fares affect the demand for bus travel. Although tremendous volumes of data exist, the data are not amenable to consistent interpretation due to crucial gaps in coverage and to various technical, statistical problems.

--Alternatives (e.g., slightly higher Amtrak fares; Amtrak's elimination; or less aggressive Amtrak competition on certain key routes, such as the Northeast Corridor) to the present situation have not been established.

One conclusion is obvious: The problems of the intercity bus industry preceded the

(for example) would have to rise 28 percent from New York to Boston and 16 percent from New York to Washington.

--If Amtrak fares were increased, the effect on bus company revenues would depend on how they responded to the increased fares. Most likely, bus company revenues would increase.

--These increased revenues could come from either (1) raising fares to collect more revenue per passenger or (2) retaining current lower fares to divert Amtrak riders. The extent to which bus companies would seek higher fares or increased ridership is uncertain. It would depend on market conditions and regulatory actions.

--The effect an increase in bus ridership would have on profits cannot be exactly determined. Bus company data indicate that the increased ridership could probably be accommodated with small increases in expenses, resulting in greater profits.

--If, however, Amtrak limits future fare increases to increases in the Consumer Price Index, bus companies' profits could be squeezed even more.

GAO believes that several points need to be emphasized to place these conclusions in the proper perspective. Chapter 5 discusses GAO's conclusions in the context of the broader issues of overall transportation policy, government regulations, and long-term socio-economic trends.

GAO solicited comments on its draft report from Amtrak, the Interstate Commerce Commission, the Department of Transportation, and seven bus companies. These reviewers generally agreed with GAO's main conclusions, but expressed varying opinions on related matters. Their comments are incorporated throughout the report. Major points raised are discussed in chapter 6.

Contents

ABBREVIATIONS

ABA	American Bus Association
Amtrak	National Railroad Passenger Corporation
CPI	Consumer Price Index
DOT	Department of Transportation
FRA	Federal Railroad Administration
GNP	Gross national product
ICC	Interstate Commerce Commission
NBTA	National Bus Traffic Association
NEC	Northeast Corridor
UMTA	Urban Mass Transportation Administration

CHAPTER 1

INTRODUCTION

The Amtrak Improvement Act of 1978--Public Law 95-421, Section 6--provides that the Comptroller General shall, in consultation with the Secretary of Transportation and the Interstate Commerce Commission (ICC), conduct a study of the economic relationship of the fare structure of the National Railroad Passenger Corporation (Amtrak) to the intercity bus industry.

This study addresses the specific issue mentioned in the act but also emphasizes the complexity of the situation facing the intercity bus industry. Competition by Amtrak is just one of the problems the bus industry faces. Long-term economic trends and competition from airlines and automobiles have steadily decreased buses' as well as trains' share of the intercity transportation market.

This market is complex; on some routes there is little competition between buses and trains, while on others (the Northeast Corridor (NEC) in particular) competition is keen. The quality of service (e.g., scheduling, speed, comfort, and the convenience of terminals) varies greatly from route to route, and these differences are at least as important as the prices charged for services. Regulation of bus routes and fares by the Interstate Commerce Commission (ICC) also complicates the analysis. Finally, the data required for a comprehensive study are lacking, as is evidenced by the absence of any definitive economic study of how rail fares affect the demand for bus travel. Although tremendous volumes of data exist, the data are not always amenable to consistent interpretation due to gaps in coverage and to various technical and statistical problems.

Since the early 1970s, the intercity bus industry has experienced a steady decline in rates of return on investment. In hearings before various congressional committees, bus company officials have attributed part of the deteriorating condition of the intercity bus industry to Amtrak. They believe that Amtrak's fare policies are diverting bus passengers to Amtrak and are forcing bus companies to charge lower fares than they would otherwise. In addition, they suggest that the regulatory environment favors Amtrak over the intercity bus industry because Amtrak does not need ICC approval of fare or service changes. According to bus company officials, the combination of these factors, plus the heavy subsidization of Amtrak, is causing the intercity bus industry

Chapter 4 presents the results of our examination of existing studies, data on fares and ridership in two routes in the NEC, and the recent experience of five small bus companies. The chapter estimates that as many as one-third of Amtrak riders would take the bus if Amtrak were not available. Such diversion would increase Class I bus ridership by almost 30 percent in the NEC and by 9 percent in the rest of the Nation. Overall, this would represent an increase of up to 11 percent--the maximum impact a change in Federal policies toward Amtrak would have on intercity buses. The evidence also suggests that such an increase in traffic would result in a more than proportionate increase in profits. An increase in Amtrak fares would provide the intercity bus industry with an opportunity to improve its financial condition by raising its own fares, attracting more ridership, or both.

In the NEC, we found that Amtrak fares forced the bus companies to reduce fares below what they would otherwise have charged in order to remain competitive, and that the reduction in Amtrak fares which occurred in 1971 and 1972 reduced bus ridership. Our analysis of the smaller bus companies shows some evidence of Amtrak's impact.

Chapter 5 discusses the conclusions of this report in the broader context of U.S. transportation problems and policy. Chapter 6 discusses comments on our draft report. The four appendixes present detailed information on certain points discussed briefly in the body of the report.

travel, however, increased by only 11 percent over this period, and travel on regular-route intercity passenger service has actually declined in recent years. Except for the relatively small upturn in ridership since subsidized Amtrak service began, rail traffic has fared much worse since 1950. In 1977, bus and rail together accounted for only 2.5 percent of the passenger miles of intercity transportation. This percentage is down from 11 percent in 1950 and 3.0 percent in 1970.

Table 2-1 shows the shares of total passenger miles of intercity travel by bus, rail, automobile, and air for selected years 1950 through 1976. The dominance of automobile and air modes is very clear from the table. In 1977 only 1.8 percent of intercity passenger travel was by bus.

TABLE 2-1

Intercity Transportation by Mode (note a)

Year	Total	Auto	Bus	Rail (note b)	Commercial air	Private air
1950	100	87.0	4.5	6.5	1.8	0.2
1955	100	89.7	3.1	4.0	3.0	0.2
1960	100	90.4	2.5	2.8	4.1	0.3
1965	100	89.2	2.6	1.9	5.9	0.5
1970	100	86.9	2.1	0.9	9.3	0.8
1975	100	86.0	1.9	0.8	10.5	0.8
1976	100	85.6	1.8	0.8	11.0	0.8
1977	100	85.3	1.8	0.7	11.3	0.8

a/Passenger miles as percent of total.

b/Includes commuter traffic.

The bus industry appears to be more important if the number of passengers, rather than passenger miles, is used to measure significance. A survey of American attitudes toward transportation published in January 1978, by the Department of Transportation, indicated that 11 percent of the persons responding to the survey had ridden intercity

more trip--are much lower since they are mainly the cost of gasoline and parking fees. For someone who already owns a car, it is often cheaper to drive than to take a bus or train, especially if more than one person is traveling.

Since 1950, the speed of air transportation has practically doubled, which has greatly increased its market. Any improvements in bus travel time made possible by the interstate highway system have undoubtedly been matched by improvements in automobile travel time.

COMPARISONS OF THE INTERCITY BUS INDUSTRY AND AMTRAK

Amtrak services are concentrated in relatively few areas. Overall, Amtrak serves about 500 points compared to the 14,000 served by the intercity bus industry. In distinguishing the influence of the Amtrak fare structure from other influences on bus company finances, it is important to categorize that part of the intercity bus industry which is most likely to be in competition with Amtrak. Concentrating on that segment may reveal significant influences of the Amtrak fare structure that are lost when comparison is made to the entire industry.

One way to identify the competitive segment of the bus industry is to divide the industry by size of company. Greyhound and Trailways, by far the two largest companies, are the only two which provide the nationwide service that Amtrak provides. There are, however, smaller companies that compete with Amtrak along individual routes, several of which are the subject of appendix III.

A breakdown of the size of different parts of the bus industry in relationship to Amtrak is given in the following table. The table compares revenue passenger miles of service and total expenses in the bus industry to those of Amtrak.

Table 2-2 on p. 8 shows that about 69 percent of the revenue passenger miles on buses were carried by the 82 Class I carriers. Greyhound and Trailways account for about 81 percent of the passenger miles carried by all Class I carriers and more than half of the passenger miles carried by the entire industry. In terms of passenger miles, Amtrak is about the same size as Trailways and about half the size of Greyhound.

Table 2-2 also shows that the intercity bus industry provides about six times as many passenger miles as Amtrak at a cost less than twice Amtrak's. Class I carriers provide almost four times as many passenger miles but spend only 32 percent more than Amtrak. Greyhound, which accounts for about twice as many passenger miles, spends about one fourth less than Amtrak.

In this report, most of our comparisons will be with Class I carriers as a group. In some cases, we will concentrate on the relationship between Amtrak and the two largest carriers because they represent the part of the bus industry that is most competitive with Amtrak. Both Class I carriers and Amtrak are national integrated transportation networks that facilitate travel among all regions of the Nation.

The Northeast Corridor

The greatest concentration of Amtrak service is in the NEC, i.e., between Boston and Washington, D.C. Bus service is much more evenly distributed throughout the United States, though the heavily populated areas of the northeast are a major service area for the industry. Table 2-3 illustrates this. Because of the degree of competition in the NEC, analysis of the impact of Amtrak on bus service in that region is a major focus of this study.

TABLE 2-3

A Comparison of Amtrak and Class I Bus Passenger Miles (1976)

Region	Class I bus regular-route passenger miles (million)	Percent of bus passenger miles by region	Amtrak (million)	Percent of Amtrak passenger miles by region	Bus as a percent of Amtrak
NEC	1,084	8.63	1,157	26.98	93.66
Other parts of country	11,476	91.37	3,133	73.02	366.34
Nationwide	12,560	100.00	4,290	100.00	292.77

passengers fell from 164.0 million to 145.9 million, a decline of 11.0 percent. In revenue passenger miles, Amtrak grew by 1.2 billion (41.2 percent) between 1972 and 1976, while buses declined by 1.9 billion (10.7 percent). (See table 2-5.)

TABLE 2-5

Comparison of Total Amtrak and Class I Bus Ridership in 1972 and 1976

	1972	1976	Percent change
	(million)		
Bus			
Passengers	164.0	145.9	-11.0
Revenue passenger miles	17,700	15,800	-10.7
Amtrak			
Passengers	16.6	18.6	+12.0
Revenue passenger miles	3,038	4,290	+41.2
Amtrak/bus	----------(percent)----------		
Passengers	10.1	12.7	-
Revenue passenger miles	22.4	34.2	-

Our task in this study was to look behind this sort of superficial comparison of ridership statistics to find out what the relationship between these two modes of transportation actually is. This is a complex situation and the data will not permit us to make very precise estimates. Table 2-6 presents additional information on trends in bus company ridership which emphasize the differences before and after the establishment of Amtrak. (See table 2-6 on p. 12.)

Change in the Northeast Corridor

In 1971, the NEC represented 10.4 percent of total bus passenger miles. By 1976, the NEC share dropped to 8.6 percent of the total. Simultaneously, Amtrak's conventional

train service in the NEC increased from 560.9 million passenger miles to 850.3 million in 1976, an increase of 51.6 percent. (See table 2-6.)

FINANCIAL CONDITION OF THE INTERCITY BUS INDUSTRY SINCE 1971

During the period 1971-76, the intercity bus industry's financial condition declined. A May 1978 study by the ICC indicated that net income of Class I carriers declined 40 percent--from $64.5 million in 1971 to $38.6 million in 1976. The industry's operating ratio 1/ climbed from 87.6 percent to 95.5 percent over the same period.

Table 2-7, which compares other 1971 and 1976 statistics on the industry's performance, shows that ridership has fallen significantly. (See p. 14) Bus miles of service decreased but not in proportion to the decrease in revenue passenger miles, hence the average load fell. Revenues have increased, but only due to the charging of higher fares during this period of inflation. Costs have increased faster than revenues; expenses increased slightly more that the national CPI, but revenues did not.

In 1977, however, the financial picture changed somewhat. When the increase in expenses and revenues are compared, the situation appears to have improved. Revenue passenger miles increased 4.8 percent over 1976; loads increased to 19.9 (revenue passenger miles per bus mile), a level just under the 1974 peak of 20.2; the increase in operating expenses per bus mile was slightly less than the increase in the CPI; and net income before and after taxes increased by about 10 percent.

The ABA believes the improved financial performance in 1977 was an aberration due to (1) temporary increases in passengers per bus, (2) extensive fare cutting on long distance routes, and (3) an accounting adjustment from an extraordinary sale of bus company assets. In the first half of 1978, they point out that the increase in passengers did not continue, thus returning the industry to pre-1977 conditions.

1/Operating expenses divided by operating revenues times 100. An operating ratio of 100 indicates expenses equal to revenues, and lower ratios indicate revenues exceeding expenses.

TABLE 2-8

Amtrak's Widening Gap Between Operating Expenses and Revenues

	Amtrak operating expenses	Amtrak revenues	Amtrak revenues as a percent of expenses
	(million)		
1973	$319.1	$177.3	55.6
1974	438.0	240.1	54.8
1975	559.8	246.5	44.0
1976	a/692.0	a/268.0	38.7
1977	821.7	306.7	37.3

a/Reflects change in fiscal year.

The decline is due to increased expenses for new and improved services and from the tendency for inflation to cause costs to rise faster than revenues. Between 1972 and 1976, the average revenue per passenger mile that Amtrak has realized has increased 27 percent compared to the 36 percent increase in the CPI.

THE INTERCITY BUS INDUSTRY'S FARE POLICY

In 1935 the interstate bus industry was brought under the jurisdiction of the ICC. This authorized the ICC to regulate fares, entry, and exit from specific traffic service areas. (The industry is also regulated in varying degrees by the various State regulatory agencies.) Thus, the fare policy of the bus industry is based on both the imperatives of shifting markets and ICC regulatory behavior. ICC policy appears generally to have been to raise overall rate schedules to cover increases in expenses. This is consistent with the legislation authorizing regulation of the bus industry, which specifically states that the need for revenues sufficient to cover costs should be considered in establishing fares, but they must be fair and nondiscriminating to passengers.

In certain markets, where competition from other modes is especially severe, the industry with ICC permission has established fares below the ICC-approved levels in an attempt to increase or maintain ridership. This has been done in long distance markets to compete with airlines and in certain travel corridors where Amtrak is especially competitive. (For additional discussion of bus fare policy, ICC regulations, and other factors affecting fares, see app. II.)

Review of Greyhound fares shows that on many routes where Amtrak service is relatively infrequent or inconvenient, and Greyhound service is better, Greyhound fares are higher than Amtrak's. On other routes where Amtrak is more competitive in terms of schedule frequency and travel times, Greyhound fares are lower.

the number of passenger miles that would be carried if Amtrak did not exist, or were cut back.

Amtrak's effect on bus fares is also important, but more difficult to estimate. The next chapter shows how bus fares have been set in competitive markets so that they are generally slightly less than Amtrak's, hence the presumption that Amtrak has had some impact in holding bus fares lower than they would be if Amtrak did not exist. Estimating what would happen in the future if Amtrak fares were raised is difficult, however, because of the regulated nature of the intercity bus industry and the presence of other factors that affect bus fares.

From the point of view of the intercity bus industry, the most important aspect of traffic diversion or fare hold-downs is the effect that these factors ultimately have on profits. By focusing on profits, the potential effects of Amtrak on the finances of the bus industry are magnified. The costs of operating a bus hardly change if the number of passengers decreases slightly, but revenues decline in close proportion to the number of riders if fares have not changed. That is, a decrease in the number of passengers may cause a far larger percentage decrease in profits. The reverse is also true. A relatively small increase in riders on a bus would more than proportionately increase the profits on that bus.

PROBLEMS IN DISENTANGLING AMTRAK'S INFLUENCE FROM OTHER INFLUENCES ON BUS COMPANY FINANCES

Many significant influences on ridership, revenues, and the bus industry's financial condition, as a whole, have nothing to do with Amtrak. Increased reliance on automobiles and airplanes, changing demographics and land use patterns, and inflation (discussed in the previous chapter) would represent problems for the regulated bus industry even if Amtrak had not been established. The same factors are, of course, problems for Amtrak as well. This report should try to determine the degree to which Amtrak has been an aggravating factor in a spiral of higher fares, fewer riders, rising costs, lagging revenues, reduced service, and even competition within the industry. Because of data problems discussed below, we concentrated on particular regions or bus companies.

DATA LIMITATIONS AND TECHNICAL PROBLEMS

A number of problems arise in obtaining relevant data and in performing economic analysis of the relationship between Amtrak and the intercity bus industry.

and exit provisions in the regulations to which the industry is subject. If cross-subsidization is extensive, loss of revenue due to Amtrak competition in an area where bus service is profitable could induce a bus company to eliminate service in some areas where there is no direct Amtrak competition. On a national level, only two bus companies (Greyhound and Trailways) can practice cross-subsidization. However, on a smaller scale the same principle could be operating if Amtrak competed with the most profitable component of a bus company operation. The cost and revenue data needed to evaluate the extent of cross-subsidization in the bus industry are not available.

Lack of data on the quality of service

Data are also non-existent to show the effect which Amtrak may have had on the intangible aspects of the quality of bus service and how the intangibles would change if competition from Amtrak disappeared. For example, the need to compete for passengers may have provided an incentive for bus companies to become more efficient and to improve the quality of service.

Technical econometric problems

Even if the conceptual and data problems we have discussed could somehow be overcome, there would still be problems in applying statistical or econometric techniques to estimating the effect of Amtrak on the intercity bus industry.

In some cases, the key variables do not vary independently, so their effects cannot be separated. This is generally true of Amtrak fares and bus fares. To find out how Amtrak fares affect bus ridership, one would wish to observe a situation in which Amtrak fares changed and bus fares did not. In practice, however, since the initial cut in Amtrak fares, the two fares tend to change in the same direction at about the same time. There is no way to determine with any precision the separate effect of the Amtrak fare change. 1/

1/This problem is known as "multicolinearity." Statistical techniques are available to deal with this problem in some circumstances, but in the present case, the degree of multicolinearity is too severe to permit an acceptable solution.

CHAPTER 4

ESTIMATING THE IMPACT OF AMTRAK ON THE INTERCITY BUS INDUSTRY

This chapter presents the results of our analysis of four types of evidence examined in order to arrive at a judgment of Amtrak's effects on bus ridership and bus fares. The following is the evidence we examined.

--Information on the demographic profiles of bus and train riders and surveys of the attitudes of Amtrak passengers. (App. I supplements this section of the report.)

--Data on fares and ridership for both Amtrak and buses in the NEC.

--Experiences of five small bus companies which the American Bus Association said had been hurt financially by Amtrak. (Detailed summaries are in app. III.)

--Evidence from econometric and statistical studies. (App. IV supplements this section of the report.)

As discussed in chapter 3, this information is not ideal for making quantitative estimates, but it is all that is available. While this chapter focuses on the relationship between Amtrak and the intercity bus industry, other factors affecting the intercity bus industry discussed in chapters 2 and 3 (such as competition from automobiles and airplanes, changing land use patterns, and the regulatory environment) must be taken into account in evaluating the financial condition of the intercity bus industry.

This chapter first estimates the maximum favorable effect a change in Federal policy toward Amtrak would have on the intercity bus industry. This would occur if Amtrak were abolished. This provides the basis for discussing two lesser effects--a scaled down Amtrak or an Amtrak with higher fares.

Next, the effect Amtrak has had on the New York/Boston and New York/Washington markets is discussed. These NEC routes are subject to intense competition between Amtrak and the major intercity bus companies. A summary of the five small bus company case studies (from app. III) follows to demonstrate Amtrak's effect on small companies outside the NEC.

which shows a high and low estimate for Metroliner service, conventional service in the NEC, and for service outside of the Northeast. This range brackets most of the estimates from survey data and most of the opinions of bus company and Amtrak officials. It indicates that the average proportion of Amtrak riders on trains other than Metroliners who would take the bus if Amtrak service were not available could be as high as one-third. For Metroliners, the estimate is 12 percent.

TABLE 4-1

Estimated Percentages of Amtrak Riders Who Would Take the Bus if Amtrak Service Were Not Available (note a)

	High	Low
Metroliner	12.0 percent	6.0 percent
Conventional (NEC)	33.3 percent	16.7 percent
Outside of NEC	33.3 percent	16.7 percent

a/The contents of this table are developed in appendix I. They are a synthesis of information contained primarily in the following studies:

"The Continuing Public Mandate to Improve Intercity Rail Passenger Travel, Final Report," Mar. 1978, Louis Harris and Associates, for Amtrak.

"Survey of the Attitudes of Intercity Automobile Travelers Toward Intercity Public Transportation." Jan. 1978, by Applied Management Sciences for the Dept. of Transportation.

"A Survey of American Attitudes Toward Transportation," Jan. 1978, Peter D. Hart Research Associates, for Dept. of Transportation.

Demographic/Attitudinal Studies of Amtrak riders by Amtrak, 1971-77.

Greyhound studies of Amtrak riders, 1976-77.

"Analysis of the Intercity Travel Market in the Northeast Corridor," Nov. 1971, by Peat, Marwick, and Mitchell, for the Dept. of Transportation.

TABLE 4-3

Percentage Increase in Bus Ridership That Would Have Occurred if Amtrak Service Had Not Been Available Compared to Actual Bus Ridership in 1976 (note a)

NEC	29.5 percent	14.8 percent
All services outside of NEC	9.1 percent	4.6 percent
U.S. average	10.9 percent	5.5 percent

a/Estimate is for increase in ridership on Class I bus companies, in revenue passenger miles.

Partial reduction in Amtrak service

The percentages for 1976 shown in table 4-3 are the best indicators we have of what might happen to bus revenue passenger miles of regular-route bus service if the Congress abolished Amtrak. There are, of course, many less extreme alternatives. An example of the many other alternatives that the Congress could consider is retaining Amtrak service at present levels in the NEC but reducing Amtrak service by 1/4 outside of the NEC. Based on 1976 experience, we estimate that this policy would add from 1.1 to 2.1 percent to the regular route, revenue passenger miles carried by Class I companies. This figure is obtained by taking 1/4 of the "All services outside of NEC" figures in table 4-2.

Amtrak fare increases

The survey data we have used does not permit us to estimate what would happen to bus company ridership if Amtrak increased its fares rather than cut back service. If bus companies also increased their fares by the same amount, bus ridership would probably fall somewhat. This situation would give many passengers little incentive to switch to the bus since the differential between the two modes would be unchanged, and fewer persons would ride either mode due to consumer resistance to higher fares.

If bus companies did not change their fares, higher Amtrak fares would induce some travelers to switch to buses. If such fare increases were moderate (say 10 percent higher), such diversion would be much less than that shown in table 4-3. The option of increasing fares enough to cover expenses was not explored since the evidence suggests

the relative travel times and travel frequencies in both markets have not varied significantly, and both modes provide a high level of service. In 1976, Amtrak introduced new Amfleet 1/ equipment. Neither trip frequency nor travel time differences drew bus passengers onto trains. Thus, buses must use lower prices to maintain their market share. At times, however, the lowest bus fare was higher than Amtrak fares due to the lengthy application process for fare changes.

New York-Boston market, 1971-78

When Amtrak was created in 1971, it charged $12.75 for a one-way ticket from New York to Boston. This price was $2.30 (22 percent) more than the $10.45 one-way bus ticket. In mid-1971, Amtrak lowered its one-way price to $9.90. This made Amtrak cheaper than the bus, reversing the traditional price differential between the two modes. The buses immediately petitioned the ICC to be allowed to reduce their fares to compete with Amtrak. By the first of a series of what are known as "short orders," the ICC allowed buses to reduce their one-way fare by 8 percent to $9.65. At this price, bus service was 25 cents cheaper than train service. (See table 4-4 on p. 30.)

Amtrak's action and the subsequent reaction by bus companies had a two-fold effect on bus companies. First, it reduced by 8 percent the revenue collected from every bus passenger (on regular one-way fares). Second, it eliminated the traditional price differential between bus and train. ICC-approved "short-orders" allowed the buses to keep their fares below Amtrak's, but this only precluded Amtrak from continuing to advertise that its fares were cheaper than bus fares.

In recent years, Amtrak and buses have changed fares frequently, mainly in response to inflationary pressures. But the differential between train and bus fares has remained small because of bus company policies of maintaining slightly lower fares.

Monthly ridership counts on Amtrak, Greyhound, and Trailways suggest that Amtrak fare reductions cut deeply into bus ridership on the New York/Boston route in 1972 and 1973. Bus ridership on both Greyhound and Trailways

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1/Stainless steel coaches capable of being hauled at high speeds, with attractive, spacious interiors.

fell significantly between 1971 and 1972. Greyhound ridership dropped 11 percent, and Trailways ridership decreased 13 percent. Amtrak, however, increased its ridership 59 percent.

Since 1972, the changes in ridership have moderated, but in a downward trend for bus companies and an upward trend for Amtrak. The data are distorted somewhat by the energy crisis, a long Trailways strike in the New York/Washington market (which affected through traffic to Boston), and the recession of 1974-75.

New York-Washington market, 1971-78

One-way fares in the New York/Washington market behaved similarly to those in the Boston/New York market. In 1972 Amtrak charged $13.00 for a one-way coach ticket between New York and Washington. (We have not included Metroliner fares in the analysis since these customers are not likely to be potential bus riders.) The ICC-approved bus rate was $11.20. Thus, the train cost $1.80, or 16 percent more than the bus. The differential in this market was less than the differential in the Boston/New York market. In June 1972, Amtrak dropped its price to $11.25, and the Amtrak competitive fare was set by bus companies at $11.00. The difference between Amtrak and bus fares was $0.25, but buses lost $0.80 per passenger as compared to the standard fare of $11.80 that the ICC approved. Beginning in 1974, both Amtrak and bus fares have risen intermittently, but the pre-Amtrak differential has not reappeared. (See table 4-5 on p. 32.) For most of the period since 1975, Amtrak fares have been slightly higher than normal bus fares, and no special Amtrak competitive bus fare was needed to maintain a price differential. Thus, an examination of tables 4-4 and 4-5 shows significant periods when no special fare is in effect. In 1978, Amtrak competitive fares reappeared.

A long Trailways strike in 1972 and 1973 makes it difficult to interpret month-by-month ridership trends during the initial period when the lower Amtrak fares were introduced. Amtrak ridership did increase in June 1972 over the previous June, suggesting that the lower fares were successful in attracting riders. Greyhound express ridership also increased during 1972, but a large increase would be expected since Trailways, which had 50 percent of the bus market, was not operating.

Effects of excursion fares on revenues

The preceding tables show Amtrak's impact on one-way bus fares. Round-trip bus fares are considerably less per passenger mile than Amtrak competitive one-way fares. For example, the New York/Boston regular bus fare on a per mile basis is 9.15 cents; the Amtrak one-way competitive bus fare is 8.48 cents; and the round-trip Amtrak competitive bus fare is 7.40 cents. Every roundtrip competitive ticket yields about 20 percent less than a regular one-way ticket. A 1977 ticket sample by Greyhound shows that about one-half of all tickets sold in the NEC are at round-trip Amtrak competitive fares. (See tables 4-6 and 4-7 on p. 34.)

In the early 1970's Amtrak lowered its fares and eliminated the fare differential between rail and bus in the NEC. Prior to this, the train cost 22 percent more (one-way) between New York and Boston and 16 percent more between New York and Washington. If this differential were applied to December 1978 fares, Amtrak's New York to Boston one-way ticket would cost $24.89. This is 27.6 percent higher than the current fare. The one-way New York to Washington ticket would cost $24.30, an increase of 15.7 percent. Bus fares could rise to the ICC-approved, regular fares of $20.40 and $20.95, respectively.

Outlook for the future and policy implications

The standard one-way fares approved by the ICC on the basis of national revenue and expense considerations are now about the same as Amtrak fares in the Northeast. As for future changes in fares, Amtrak stated in its 1977, 5-year plan that it intends to follow a policy of increasing fares at a rate no higher than the increase in the Consumer Price Index. The plan also indicates that the increase in expenses needed to operate the same system as the previous year would be expected to be at a rate about 3 percentage points higher than the CPI. The result is that the percentage of Amtrak expenses met by Federal subsidy will increase unless ridership also increases. We noted earlier that expenses per bus mile have tended to increase at rates greater than the CPI. Unless bus companies competing with Amtrak successfully control costs or improve load factors, the need to keep fare increases in line with Amtrak's will result in a further squeeze on bus company operating revenues.

When the NEC Improvement Project is completed, high-speed service will be available from Boston to Washington. This

should increase trip frequency and decrease travel times for many NEC travelers. This relative improvement in train service should further shrink bus ridership in the NEC.

If the Congress were to direct Amtrak to increase its fares to cover more of its costs, it is unclear what effect this would have on fare increases the bus companies would request or the ICC would approve. Bus companies would have the option of allowing the traditional difference between train fares and bus fares to reappear, thereby hoping to attract more riders. The companies could also raise their fares in order to increase their revenue per passenger. We are not in a position to estimate which combination of these approaches would provide the maximum increase to bus company net operating revenues, or to determine the impacts of regulatory actions and bus company responses.

CASE STUDY SUMMARIES

We asked the intercity bus industry's trade association--the ABA--to suggest several small companies adversely affected by Amtrak. Of the several suggested, we selected five companies for follow-up interviews. They were:

	Corporate offices
Indian Trails, Inc.	Owosso, Michigan
Pacific Trailways, Inc.	Bend, Oregon
Vermont Transit, Inc.	Burlington, Vermont
Carolina Coach, Inc.	Raleigh, North Carolina
Adirondack Transit Lines, Inc.	Kingston, New York

At each company, we met with corporate officials and collected data on boardings, passengers, passenger miles, fares, the regulatory environment, and other pertinent data to quantify the effect of Amtrak on their operations. We attempted to obtain data to analyze the effects of fare changes on ridership. As discussed earlier, much of the data we wanted was either unavailable or not comparable. We were able, however, to draw some conclusions as to Amtrak's impact on the five companies we studied. The following is a synopsis; appendix III contains complete summaries of our findings.

The conclusion from these case studies is much the same as from the other evidence we have examined. In some cases, Amtrak definitely appears to have had an adverse impact on the bus companies that were in competition with it. However, other factors also contribute to the transportation characteristics of each of the markets included. Available data do not permit us to provide a quantitative estimate of Amtrak's impact.

EVIDENCE FROM ECONOMETRIC AND STATISTICAL STUDIES

Econometric studies that deal with the relationship between rail and bus services are reviewed in appendix IV. It is obvious from that review that little confidence can be placed in the exact coefficients appearing in these models which measure the economic relationship between the two modes. Taken together, however, the results of these models are generally consistent with the results of this study. In almost every case, if an effect is measured, it shows that an increase in Amtrak fares will increase the demand for bus service. In some cases, such as the model used by the FRA in preparing the environmental impact statement for the NEC, the increase in demand for bus service is quite sensitive to Amtrak fares. These models suggest that the two modes do compete with each other and confirm the expectation from basic economic theory that, where competition exists, a change in the price of one good will have a significant impact on the demand for the other.

CONCLUSIONS

This chapter has examined four types of evidence concerning the economic impact of Amtrak on the intercity bus industry: ridership surveys, fares and ridership in the NEC, the experience of five smaller bus companies throughout the United States, and economic studies. The evidence does not permit us to draw precise, quantified estimates of Amtrak's net financial impact. In some of the case studies, the problem of isolating Amtrak's effect from that of other factors prevented us from drawing any conclusion.

We believe that our analysis supports the following conclusions:

--Bus ridership would definitely be greater than otherwise if Amtrak service were cut back or terminated. If all Amtrak service were terminated, the increase in revenue passenger miles of regular-route service

CHAPTER 5

CONCLUDING COMMENTS

This study has been concerned with measuring the impact of Amtrak fares on the intercity bus industry. There are, however, several points that should be emphasized in order to place the conclusions in proper perspective.

1. Amtrak competition is just one of the factors which affect bus ridership and revenues. Although these other factors were not the primary focus of our analysis, they are extremely important for understanding the financial condition of the bus industry. These factors include economic growth and higher incomes, population changes, suburbanization, changes in transportation technology, regulation, and inflation. The economic impact of Amtrak on the intercity bus industry has occurred within the context of these longer run trends. Although increases in Amtrak fares would provide the bus companies with more revenue, this improvement might well be wiped out eventually by other long-term factors adversely affecting bus company finances.

2. Determining that the Amtrak fare structure has had an adverse impact on intercity buses does not necessarily mean that Amtrak fares are too low or that Amtrak management has followed the wrong policies. By law, Amtrak management is obligated to undertake innovative marketing strategies. If Amtrak is to fulfill its mission, there are economic constraints on the extent to which Amtrak can raise its fares. The fares must be low enough to attract riders. An increase in Amtrak fares' while beneficial to the bus industry, would reduce Amtrak ridership depending on bus company response and on the demand for train service in the markets Amtrak is serving.

Examining the market situation faced by Amtrak was beyond the scope of this study. 1/ For this report, it is only necessary to observe that from Amtrak's point of view, an adverse impact of Amtrak fares on the bus industry can be viewed as simply an unavoidable side effect of a strategy aimed at diverting riders from automobiles and airplanes and increasing the availability of different modes of transportation. The area where the strongest economic case can be

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1/See our report "Should Amtrak's Highly Unprofitable Routes Be Discontinued?" (CED-79-3, Nov. 27, 1978).

> system; that the public convenience and necessity require the continuance and improvement of such service to provide fast and comfortable transportation between crowded urban areas and in other areas of the country; that rail passenger service can help to end the congestion on our highways and the over crowding of airways and airports; that the traveler in America should to the maximum extent feasible have freedom to choose the mode of travel most convenient to his needs * * *."

These broad goals do not, however, set explicit priorities or cost-effectiveness criteria. We believe that the Congress should continue to reassess the importance of maintaining a national system of common carrier surface transportation and of providing transportation to persons who otherwise might not travel at all. Aspects of Amtrak service which serve these two objectives can then be considered separately from other Amtrak objectives (such as relieving congestion at airports).

A basic fact of U.S. transportation is that intercity bus service costs less than intercity rail service (Buses employ fewer persons per passenger mile, average salaries are less than in the railroad industry, and rolling stock is cheaper.). One of the reasons why the cost of bus transportation is so low is that it uses a highway system for which it pays only a small part of the total cost, since bus traffic is a small part of the total use. As long as this Nation is committed to maintaining a high-performance national highway network for automobile and truck traffic, the fair share contribution of buses to maintaining that system will appropriately be far less than the total costs of the system.

4. In several places, this report considered ICC and State regulation of intercity buses in trying to assess the economic relationship of Amtrak and the bus industry. Regulatory commissions may not approve rate increases for buses if they are requested, even if Amtrak fares are increased. Regulatory restrictions make it difficult for bus companies to reduce the services when passenger demand for bus transportation is declining. ICC decisions on charter service and UMTA funding of local bus transportation systems also can affect the financial condition of the intercity bus industry.

CHAPTER 6

AGENCY COMMENTS

In preparing this report, we sought comments on an earlier draft from the following:

--Amtrak

--American Bus Association

--Greyhound Lines, Inc.

--Trailways, Inc.

--Indian Trails, Inc.

--Carolina Coach Company

--Pacific Trailways

--Vermont Transit Company, Inc.

--Adirondack Transit Lines, Inc.

--Department of Transportation

--Interstate Commerce Commission

We appreciate the information and detailed comments provided by all of the parties which were very helpful to us in completing this report. This chapter summarizes and discusses major points raised in the comments we received. Comments received from Amtrak and the intercity bus industry are discussed first, followed by those of the Department of Transportation and the Interstate Commerce Commission.

AMTRAK

Amtrak comment

Amtrak stated that the data presented and the analysis of the information were generally accurate. It emphasized two points made in the report: that the proportion of riders on non-Metroliner trains diverted from buses could be less than the one-third "upper bound" estimate contained in chapter 4 and that other long-term factors have an important effect on bus company finances. Amtrak was concerned with GAO's characterization that the market for bus and rail was declining, since Amtrak ridership has increased since 1971

the two modes compete, and they also emphasized Amtrak's adverse impact on bus company profits. The industry did not provide any additional information on how bus companies would respond if Amtrak fares were raised.

The ABA noted that the greatest impact of Amtrak to date has been in the Northeast Corridor and in similar situations, but that expansion of Amtrak service or increased subsidy could result in problems in other areas. Trailways pointed out that the financial statements for its two companies serving the Northeast Corridor (Safeway Trails, Inc. and Trailways of New England) show losses for 1976, 1977, and the first 6 months of 1978. Trailways also stated its belief that the primary reason Amtrak lowered its fares in the Northeast in 1971 and 1972 was to divert price sensitive passengers from buses, and that it therefore would not be appropriate to characterize reduction in bus patronage in the Northeast as an unintended side effect of a strategy aimed primarily at airplane and automobile riders. The industry questioned the need for a subsidy which allows Amtrak to keep its fares at a level that eliminates the differential between bus and train fares that existed before Amtrak took over. Industry officials pointed out that it is the higher priced Metroliner service which comes the closest to breaking even, and that the bus companies competing with Amtrak would be adversely affected if Amtrak fares in the future continued to go up only with the cost of living.

The industry comments also expressed concern that the GAO draft report did not show clearly that bus companies would be able to handle increased travel with relatively little increase in expense if Federal policies toward Amtrak changed. By increasing average loads, by increasing the amount that each bus is used during the year, and by reassigning buses from charter to regular-route service, they stated it would be possible for the bus companies to increase the amount of travel which could take place with relatively little increase in additional expenses--which in turn would increase profits. Several of the smaller bus companies reiterated their view that Amtrak had harmed them although it was difficult to demonstrate this with available statistics.

There was almost no comment from the intercity bus industry about long-term trends affecting the intercity bus industry. Trailways stated its belief that the intercity bus industry should be deregulated so that it would be in a position to compete with subsidized Amtrak service that is subject to very little regulation.

We recognize that reduction in Amtrak fares in 1971 and 1972 permitted Amtrak advertising to state that it was cheaper than bus. We believe the text of the report makes it clear that we did not try to determine to what extent Amtrak was motivated by a desire to take passengers away from the bus. We have reported what can be observed or inferred from ridership statistics, surveys, and economic studies. Amtrak fare reductions did reduce bus patronage and influence bus fares, even though the overall result of Amtrak's marketing efforts may have been to obtain a majority of its passengers from places other than intercity buses. While we recognize that many Amtrak passengers are sensitive to factors other than price, trying to estimate the effects on Amtrak of higher Amtrak fares was outside the scope of this analysis.

Department of Transportation

Department of Transportation (DOT) comments generally agreed with our analysis, both with respect to Amtrak's impact on the intercity bus industry and to the importance of viewing the intercity bus industry in a broader context. DOT also recognizes that data problems make it difficult to estimate Amtrak's effects on the intercity bus industry with precision. The Department felt that the concluding comments in chapter 5 help to develop a reasonable framework within which Amtrak's effect on the intercity bus industry can be evaluated. DOT also stressed that Amtrak's effects would differ by region and carrier, a point which we believe should be clear in the report. DOT also indicated that it will be studying the effects of regulation on the intercity bus industry in the coming year.

The DOT fully concurs in the observation that the problems of the intercity bus industry precede the establishment of Amtrak and even without competition from Amtrak the industry would have declined. DOT agrees that the precise effect an increase in bus ridership due to a reduction in Amtrak service would have on bus company profits is uncertain, but stresses that bus company profits would increase because the number of additional bus passengers would be small enough that the bus companies could probably accommodate these increases without incurring major increases in personnel and equipment costs.

INTERSTATE COMMERCE COMMISSION

Agency comments

The ICC generally agreed that the impact of Amtrak on the intercity bus industry is significant and that the problems

SUMMARY OF PASSENGER SURVEYS REGARDING AMTRAK AND BUS TRAVEL, AND DEMOGRAPHIC PROFILES OF PASSENGERS

This appendix summarizes survey data about the characteristics of passengers on intercity buses and trains, and about passenger attitudes toward the two modes. The discussion in this appendix compliments information in appendix IV about econometric studies describing the relationship between the two modes of transportation.

The first section of this appendix describes demographic characteristics of persons riding trains and intercity buses. This provides insight into how the markets served by trains and intercity buses overlap. The second section describes a recent national survey of attitudes toward the various modes. This survey suggests that the existence of higher quality train service decreases preference for intercity bus service. The third section describes how train riders have responded to questions about their willingness to take the bus if the train was not available. This provides the basis for the quantitative estimates that are contained in the concluding section of this appendix of the proportion of Amtrak riders who would ride the bus if train service were unavailable.

We have not attempted to independently evaluate the methodology used in conducting the surveys described in this appendix, nor have we independently verified survey results. Specific comments about the limitations of the data are contained in the sections which follow. In particular, it should be noted that we attach no statistical validity in the formal sense of the term, to the quantitative estimates contained in the concluding section.

DEMOGRAPHIC CHARACTERISTICS OF PASSENGERS ON TRAINS AND INTERCITY BUSES

The professional literature about transportation emphasizes the need to look at the demand for various

Nonetheless, it is the best available source for a consistent comparison of the characteristics of riders on intercity buses and trains.

Selected characteristics of 1972 ridership on intercity buses and passenger trains is contained in tables I-1 (p. 52), I-2 (p. 53), and I-3 (p. 54). 1/ Bus riders tend to be either younger or older than the general traveling public and train riders--37.9 percent of bus riders were 24 years of age or younger, while 28.6 percent of train riders and 32.5 percent of the total (see table I-1) intercity market was under 24. The concentration of riders under 18 years of age on intercity buses compared to trains is especially noteworthy. Also 16.8 percent of bus riders were 65 or older while 10.5 percent of train riders and only 4.9 percent of the total market was 65 or older. Women also constitute a greater percentage of intercity bus ridership than of train ridership. In 1972, 59.5 percent of all persons taking intercity bus trips were women. Women constituted 44.7 percent of persons riding the train and 43.2 percent of all persons making intercity trips.

Bus travelers also have lower incomes than train riders or than the average traveler on all modes. In 1972, 43.9 percent of bus travelers earned less than $7,500, 26.1 percent of train travelers earned less than $7,500, and 20.9 percent of all travelers were in this category. (See table I-2.)

At the higher end of the income scale, the percentage of train travelers with incomes above $15,000 (28.3 percent) was above the average for all modes (26.2 percent). The percentage of bus travelers with incomes above $15,000 (13.4 percent) was much below the average for all modes. The occupational and educational characteristics of riders on the various modes is consistent with what would be expected from the income data. Train riders have more education and are more likely to have a job classified as professional, technical, or managerial than average intercity travelers. Passengers on intercity buses are below national averages in this census in each of these categories, and the chances that a bus passenger will have a college degree or professional occupation are only half as great as with train passengers.

1/A more detailed analysis of the characteristics of passengers on trains and intercity buses is contained in "The Intercity Bus Industry" prepared by the ICC in 1977.

TABLE I-2

Income Classification of Intercity Travelers by Mode by Person-trips (note a)

Income	Bus	Auto (note b)	Auto (note c)	Train	Air	Total
Under $5,000	26.5	8.4	6.8	14.9	5.5	8.3
$5,000 to $7,499	17.4	13.2	14.8	11.2	6.5	12.6
$7,500 to $9,999	14.9	17.2	19.0	9.4	8.4	16.2
$10,000 to $14,999	23.4	33.4	86.1	29.3	26.2	32.5
$15,000 and over	13.4	23.7	20.4	28.3	48.3	26.2
No answer	4.5	4.0	2.9	6.9	5.2	4.2

Note: Columns may not add to 100 due to rounding.

a/Source: ICC, based on 1972 Census of Transportation.

b/Auto transportation without camper.

c/Auto or truck transportation with camper.

A much higher proportion of 1972 train trips than bus trips were for business and conventions--30.1 percent and only 12.2 percent, respectively. Trains are used for business purposes more than the 20.2 percent average for all trips, and buses are used less than average for this purpose. (See table I-3.) The predominant purpose for both bus and train trips was visiting friends and relatives: 32.6 percent of bus trips, 40.1 percent of train trips and, 38.4 of all trips were for this purpose. A much higher proportion of intercity bus trips was for outdoor recreation, sightseeing, entertainment, and other--55.2 percent for the bus and 29.9 percent for the train.

The results of the 1972 National Travel Survey show that there are some differences in the characteristics of

TABLE I-4

The Market Served by Trains and Intercity Buses (note a)

	Trips by train as a percentage of trips taken by either train or bus (percent)
All trips	16.6
Trip purpose:	
Business	35.6
Visit friends and relatives	21.5
All other	10.2
Income:	
Less than $5,000	11.2
$5,000 to $10,000	12.5
$10,000 to $15,000	21.9
Above $15,000	32.1
Age:	
Less than 18 years	11.1
18 to 24	25.1
25 to 34	26.7
35 to 44	22.4
45 to 54	22.2
55 to 64	21.1
65 +	12.2

a/ Derived from 1972 Census of Transportation.

State studies

Studies by State Departments of Transportation in Minnesota and Michigan confirm the same general portrait of passengers on intercity buses and trains that we have described here. These studies conclude that the two modes serve similar markets and that Amtrak can have an economic impact on the intercity bus industry.

SURVEY OF PUBLIC ATTITUDES ABOUT PREFERRED MODES OF TRAVEL

In this national sample commissioned by Amtrak, 1/ persons who travel were asked to identify the mode they prefered to take on intercity trips of over 100 miles. Their responses were tabulated for the total sample and for respondents who live in rail corridors. The interviewing instrument emphasized that their responses should be "realistic." (See tables I-6 and I-7 on p. 58.)

In the total sample, 8 percent said they would choose a bus and 6 percent, a train as their first choice. In the tabulation for rail corridor respondents, these figures change; only 5 percent of corridor residents would consider the bus as their first choice, while 9 percent would first choose the train. These results suggest that train travel is competitive with buses in the market served by both modes. In both the total and the rail corridors, only 14 percent of the riders expressed preference for either bus or train, but the higher proportion expressed preference for train in the corridors (9 percent in the corridors versus 6 percent overall). It appears that the existence of higher quality rail passenger service is associated with a decrease in the percentage of the public's favoring the intercity bus as a mode of travel.

TABLE I-6

Choices of Transportation

(Base: total)

Mode	First choice	Second choice	Total first and second choices
	(percent)		
Cars	56	20	76
Airplanes	28	33	61
Buses	8	24	32
Trains	6	19	25
Not sure	2	4	6

a/Sample was taken from 1,600 people.

1/"The Continuing Public Mandate to Improve Intercity Rail Passenger Travel, Final Report," January 1978, Louis Harris and Associates, Inc.

TABLE I-8

If Amtrak Service Were Not Available,

by What Means Would You Have Made This Trip?

	Metroliner	Conventional Weekday	Conventional Weekend	Amfleet Weekday	Clocker (note a) Weekday	Silverliner (note b) (During commuter hours)
Number of respondents	137	273	680	679	118	151
	(percent)					
Bus	12	37	33	35	33	15
Auto	34	23	35	33	53	68
Plane	44	33	22	26	3	1
None of these--would not have made trip	10	7	10	7	9	16

a/A conventional train that serves New York City and Philadelphia only.

b/A conventional train that serves Philadelphia and Harrisburg only.

APPENDIX I

Was One of the Following Special Fare Inducements The Deciding Factor in Your Choice of the Train for This Trip?

Six Amfleet and Two Conventional Trains--May 4-6, 1976
(942 responses)

25-percent reduced roundtrip fare	21 percent
Bicentennial excursion fare	9 percent
U.S.A. Rail Pass	1 percent
None of these special fares was a factor in my decision to use the train	70 percent

Furthermore, the survey indicates that Amtrak's advertising has attracted riders. Fifteen percent of the riders in this survey of Amfleet passengers indicated advertising induced this trip:

Are You Riding the Train as a Result of Advertising by Amtrak?

Six Amfleet Trains
May 4-6, 1976
(973 responses)

Radio	1 percent
T.V.	5 percent
Newspaper	9 percent
Would ride anyway	86 percent

Greyhound studies of train riders

In 1976 and 1977 Greyhound representatives went on board Amtrak trains and asked riders to fill out a questionnaire. The questions were asked on trains in the following markets:

New York/Albany	(NY/A)
Los Angeles/San Diego	(LA/SD)
Chicago/Milwaukee	(C/M)
Duluth/Minneapolis	(D/M)
Portland/Seattle-Vancover	(P/S-V)

One of the questions Greyhound asked was what other means of transportation were considered. This question is different

Although the markets served by the two modes are not identical, the surveys suggest that intercity buses and trains do compete for traffic and that there are some groups of persons who would be willing to take the bus if train service were not available. When the two modes compete, it is reasonable to infer that Amtrak's policies of improving equipment and of reducing fares has diverted riders from the bus. This qualitative conclusion is consistent with information about price and service competition contained in the econometric studies discussed in appendix IV.

The surveys are much less reliable for trying to estimate the economic effect of Amtrak on the intercity bus industry quantitatively. Except for one set of surveys showing that Amtrak's new Amfleet equipment and reduced fare packages attracted some passengers from intercity buses, the surveys provide no evidence on the extent to which specific Amtrak policies have adversely affected the buses. The one rough quantitative estimate that can be made from train passengers' opinions is the increase in ridership on intercity buses that would result if Amtrak services were not available at all.

Using surveys of train passengers' attitudes to try to make any quantitative conclusions makes it necessary to examine data validity problems that have not been discussed in the preceding descriptions of survey content. Some problems of validity are inherent in any attempt to apply survey information to obtain quantitative estimates of how people will actually respond in a new situation. The validity of the specific surveys described in this appendix also needs to be examined.

One problem applicable to all attitudinal surveys is that participants are only responding to hypothetical questions and are not making actual decisions. Furthermore, survey questions are general and they do not provide specific information about prices, travel time, service frequency, or other characteristics that may influence the mode of transportation chosen for any particular trip. Also, subtle distinctions in the phrasing of questions can significantly alter responses. At best, survey responses reflect probable responses in the event that Amtrak services were terminated, but may not reflect actual long-run adjustment. (For example, a former Amtrak rider may eventually purchase an automobile or travel less frequently but take the airplane rather than take trips by intercity buses.)

The implication of the problems inherent in attitudinal surveys is that little confidence should be placed in specific

TABLE I-9

Estimated Proportion of Amtrak Riders Who Would Take the Train if Amtrak Services Were Terminated

(in percent)

	Low	High
Metroliner	6.0	12.0
Non-Metroliner in the NEC	16.7	33.3
Trains outside the NEC	16.7	33.3

1978 test of a passenger assessment survey showed that 26.7 percent of the respondents on non-Metroliner trains indicated that they would take the bus if Amtrak services were not available. The one estimate of potential Metroliner diversion to the bus in table I-9 is 12 percent. Discussions with Amtrak, Department of Transportation, and bus industry officials have indicated that in their professional judgments diversion would fall in a similar range. We also believe that since respondents in Amtrak attitudinal surveys already made a decision to take the train over the bus, it is likely that responses to hypothetical questions about taking the bus would tend to be at the upper end of the estimated range of how many Amtrak riders would actually take the bus if Amtrak were discontinued.

Our estimates of the percentage of Amtrak riders who would take the bus if Amtrak services were terminated represents our best judgment of this effect, given the evidence now available.

The range of the estimates is quite broad. To try to narrow this range would, in our judgment, require the collection of additional information under more controlled circumstances. Obtaining information which would overcome some of the reliability problems we have described (not all of the problems can be overcome) could be quite expensive.

1. Fares must be non-discriminatory.

2. Fares must be just and reasonable.

3. Fares must be set at the lowest level consistent with providing service.

4. Fares must be published in tariffs.

To ensure that the public has notice of rate and fare increases, the act also provides that:

1. Fares or tariffs must be filed with the ICC 30 days in advance of the effective date.

2. Based on protests or its own initiative, the ICC can question if the increase is justified and hence investigate the lawfulness of the increase.

3. The ICC can suspend an increase in whole or part for 7 months.

4. If conditions warrant, the ICC can waive the 30-day notification period on new tariffs.

EXPERIENCE UNDER ICC REGULATION OF FARES

In the fare-setting process, traditionally the ICC has not tried to "fine-tune" bus prices or rates. Almost all cases before the ICC which involve bus fares have involved general rate increases. Greyhound records show that since 1973, the ICC has approved most of the increases in fares that have been requested by the industry. Effective dates of ICC action have often been later than those sought by the industry. The lag in approval of rate increases can be a problem during an inflationary period.

REDUCTIONS IN FARES TO MEET COMPETITION BY AMTRAK AND AIRPLANES

Amtrak competitive fares

In 1971 NBTA asked the ICC to permit it to circumvent normal notice requirements in setting fares in Amtrak markets. This exemption authority is within the jurisdiction of the ICC. The core of the request submitted is below:

> "Unless the Intercity Bus Carriers are authorized to establish Reduced Fares, competitive with the fares of AMTRAK, to become

announced by AMTRAK, effective on the same date observed by AMTRAK or the earliest possible date subsequent thereto. The authority granted herein expires with May 25, 1973." 1/

The bus companies have continually requested the ICC to extend this type of order, and the ICC has done so. Although it is used extensively in the NEC, the order can be used in any market in which Amtrak operates. The bus companies have regularly used this order to produce effective fare competition with Amtrak in the NEC. (See ch. 4.)

Long-haul discounts

The ICC has allowed the bus companies to compete for long trips by offering low fares. Studies by the ABA conclude that these low, long distance bus fares do attract riders but are not necessarily profitable. Recent deregulation of the airlines, permitting airline price flexibility, probably will increase diversion to the airlines.

CROSS-SUBSIDIZATION: JUST FARES AND FAIR PROFITS

The ICC fare-setting procedures must simultaneously try to fulfill two goals:

--Ensuring that all fares charged passengers are just, reasonable, and non-discriminatory. This means the fares must be fair and equitable to all riders.

--Ensuring that fares in conjunction with other revenue sources permit bus companies a fair profit on their overall operations and ensure they will continue to be able and willing to carry passengers and maintain service.

One way that the ICC tries to accomplish these two goals is to allow cross-subsidization. This means that profits that an intercity bus company makes in one area can be used to cover losses in another. A bus company, under normal circumstances, is most likely to make profits in densely populated areas, such as the Northeast, where loads are apt to be higher. The company is most likely to lose money in lower density rural areas, where loads are much lower. Other sources of profits within a company are often charter service and package express.

1/ICC Special Permission No. 72-4957-M., May 26, 1972.

CASE STUDIES,

INDIAN TRAILS, INC., CASE EXAMPLE

Indian Trails, Inc., is an intercity bus company serving cities in Illinois, Indiana, and Michigan. The bus company is relatively small, with total operating revenues of $3,895,554 in 1976, compared to Greyhound's $539,979,489. For 1976, the company had total assets of about $3.7 million and a net operating income of $247,963.

The sources of revenue for the company have been changing from 1969 to 1976, and revenue derived from intercity passengers has been declining relative to charter. In 1971 Indian Trails' passenger revenues accounted for 65.1 percent of total operating revenues, whereas in 1976 it was 47.9 percent. Total passenger intercity miles declined 12.4 percent during this period. The operating ratio of the company was 96.2 in 1971 and 96.7 in 1977. The ratio was higher than the industry average for Class I carriers from 1971 through 1975.

COMPETITION WITH AMTRAK

Indian Trails' major routes serve the cities of Chicago, Illinois; and Kalamazoo, Battle Creek, Lansing, and Flint, Michigan. In September of 1974, Amtrak initiated service between Chicago and Port Huron, Michigan. Amtrak's route served Kalamazoo, Battle Creek, and Lansing, and therefore, was in direct competition with Indian Trails' primary route. Amtrak also provides service on a route from Chicago to Detroit which is competitive with Indian Trails' service between Chicago, Kalamazoo, and Battle Creek.

The president of Indian Trails testified in 1976 before the Subcommittee on Transportation and Commerce, House Committee on Interstate and Foreign Commerce, that:

> "Amtrak's competition has had a severe economic impact on the traffic and revenues of my company * * * The loss of an average of one or two passengers per bus is often the difference between a deficit bus operation and one that is profitable."

As evidence that Amtrak is diverting passengers from Indian Trails, the company points to the decrease in boardings for selected months between Chicago and Kalamazoo, Battle Creek, Lansing, and Flint. For example, table III-1 shows the decrease in Indian Trails' boardings for the month of July from 1973 to 1977. (See p. 73)

APPENDIX III

TABLE III-1

Percent Change In Boardings From July Of One Year To The Next July

Boarding between Chicago and	Year 1973	1974	Percent change from Previous year	Year 1975	Percent Change from Previous year	Year 1976	Percent Change from Previous year	Year 1977	Percent Change from Previous year
Kalamazoo	2,798	2,687	-4.0	2,039	-24.1	1,957	-4.0	1,811	-7.5
Battle Creek	970	926	-4.5	762	-17.7	651	-14.6	669	+2.8
Lansing	1,637	1,622	- .9	1,259	-22.4	1,222	-2.9	1,373	+12.4
Flint	3,045	2,874	-5.6	2,472	-14.0	2,508	+1.5	2,510	+.1

TABLE III-2

Sources of Operating Revenue

Year	Passenger revenue	Special bus revenue	Express revenue	Other revenue	Total revenue
	(percent)				
1971	65.1	25.0	9.3	0.6	100.0
1972	61.8	26.3	11.4	0.5	100.0
1973	58.9	30.0	10.9	0.2	100.0
1974	50.0	41.6	8.3	0.1	100.0
1975	48.4	43.3	8.2	0.1	100.0
1976	47.9	43.3	8.8	0.0	100.0
1977	44.9	47.1	7.9	0.1	100.0

TABLE III-3

Boardings for Chicago-Flint route

	1974	1975	1976	1977
	----------(July)----------			
Amtrak	5,134	1/13,309	13,951	14,263
Indian Trails	13,839	11,533	11,678	11,655

1/For Amtrak's Chicago-Detroit route, the month of June was used instead of July. Boardings for July were not available.

Note: See table III-4 below for Amtrak and Indian Trails' boarding points between Chicago and Flint.

TABLE III-4

Boarding points between Chicago and Flint

Amtrak	Indian Trails
Chicago	Chicago
Niles	Niles
Kalamazoo	Kalamazoo
Battle Creek	Battle Creek
Lansing	Lansing
East Lansing (note a)	East Lansing
Durand	Durand
Flint	Flint

a/Amtrak does not stop in East Lansing.

Table III-3 shows that the Indian Trails' boardings had decreased from 13,839 in July 1974, to 11,533 in July 1975. This drop also corresponds to the increase in Amtrak ridership and supports Indian Trails' position that Amtrak is diverting passengers from Indian Trails. How much of the drop in Indian Trails' ridership is due to Amtrak is, however, an open question.

from Chicago to Lansing, Flint, and Saginaw. Total operating assistance paid to Indian Trails was $135,248.31, and 124,038 passengers were carried on these express runs from November 1975 to May 1978. This express service may have diverted some rail passengers to the bus.

The factor of lower Amtrak fares also clouds the topic of diversion. On the routes Chicago to Kalamazoo, Lansing and Flint, Amtrak's regular fares have always been lower than Indian Trails' except for the period July 1, 1975 to July 1, 1976. For example, the one-way Amtrak fare from Chicago to Kalamazoo was cheaper in a range of 24.4 percent to 9.3 percent from September 15, 1974, to October 30, 1977. Since people riding the bus typically have modest incomes, it could be assumed that they are price sensitive and would select the cheapest mode. However, during the period when Indian Trails' fares were cheaper than Amtrak's, Indian Trails' boardings declined between Chicago, Kalamazoo, and Lansing. Boardings between Chicago and Flint increased 1.5 percent.

CONCLUSIONS

From the information provided by Indian Trails and the Michigan Department of Transportation, it appears that Amtrak is diverting passengers from Indian Trails. The Michigan Department of Transportation study concludes that 23.8 percent of Amtrak passengers had the potential to be diverted from the bus. Clearly, the opportunity exists for diversion.

The evidence that diversion is occurring is the drop in Indian Trails' boardings in Amtrak's first full year of operation, 1975. Indian Trails' boardings along the competitive route dropped by 2,306 in July 1975, while Amtrak's rose by 8,175. It is unreasonable, however, to assume that the drop is due entirely to Amtrak. Other factors such as reduced Indian Trails' schedules, automobile and airline competition, the lack of rail service to Flint and Lansing from 1971 to 1974, and an overall declining intercity bus patronage preclude the calculation of an exact passenger diversion figure.

How serious has the diversion been financially to Indian Trails? The revenue derived from intercity passengers had been declining as a percent of total revenue prior to the start of Amtrak's Chicago to Port Huron route in 1974. From 1971 to 1973, it had declined 6.2 percent, while from 1973 to 1975 it declined 10.5 percent. Package express and

on passenger miles, passengers carried, and bus miles on the route from 1971 to 1977. During the period 1971-75, other events overshadowed the impact of Amtrak on Carolina Coach. Data for this time period is shown in table III-5. (See p. 80.)

From 1971 to 1972, there was a 33.9 percent drop in passenger miles and a 28.7 percent drop in passengers carried. One might think that this was due to Amtrak. The Carolina Coach treasurer indicated, however, that employees of Safeway Trails, Inc., which provides service to the north of Carolina Coach, were on strike during 1972. This interrupted the company's traffic from and to points on its lines that would normally have traveled on Safeway Trails, and caused a drop in bus and passenger miles.

From 1972 to 1973, there was a slight increase in passenger miles, but a decline in passengers and bus miles. This relationship is also present when comparing 1974 to 1973 and is due primarily to a strike by Carolina Coach drivers from December 1973 to April 1974. The loss of passengers in December accounts for the drop in 1973 passengers and bus miles. Similarly, the loss of 3 months' traffic accounts for the drop in 1974 and the increases for 1975 over 1974.

If the non-strike months of January to November 1973 are compared to those months for 1972, passenger miles on the route increased by 7.6 percent and passengers by 4.7 percent. If the non-strike months for 1974 are compared to the same months for 1973, passenger miles increased 12.7 percent and passengers, 3.8 percent. (The energy crisis might distort some data in 1974.) If the effects of the Carolina Coach strike are ignored, the Richmond to Fayetteville route had passenger gains in 1973 and 1974.

Route data vs. overall Carolina Coach data

Despite the fluctuations in the data due to strikes, it could be hypothesized that the Richmond to Fayetteville route would be more affected than the company as a whole due to the Amtrak competition. But a comparison of percentage changes in passenger miles, passengers, and bus miles in table III-6 (See p. 80) does not clearly support this hypothesis.

In certain years, the Richmond-Fayetteville route passenger traffic has been less affected than passenger traffic for the company as a whole. The treasurer of Carolina Coach

felt the data would not show the impact of Amtrak prior to 1975, because of the strikes. In 1976 and 1977, however, passengers and passenger miles declined less on the Richmond-Fayetteville route than total passengers and passenger miles. The treasurer indicated that although the Richmond-Fayetteville route decreased less than the system, it decreased more than some routes. Most of the system average decrease was attributable to large reductions on a few routes, he said. Therefore, the diversion of passengers by Amtrak is inconclusive.

Other evidence of Amtrak competition

Other evidence that Amtrak might be affecting Carolina Coach would be the scheduled miles on the Richmond-Fayetteville route. On January 5, 1972, the scheduled route miles were 6,405, and on July 25, 1975, they were 6,247. During this period, the number of scheduled miles fluctuated with the strikes of Safeway Trails, Inc., and Tamiami Trail Tours, Inc., which feed and receive traffic from Carolina Coach. Scheduled miles were reduced during these strikes and increased when the strikes were over. Since September 1975, four roundtrips have been dropped and none added. The traffic administrator for Carolina Coach could not say if the dropped schedules were directly related to Amtrak.

The overall financial performance of Carolina Coach does not provide any clues as to Amtrak's impact. Passenger revenue as a percent of total revenue has declined from 81.2 percent in 1965 to 75.1 percent in 1976. Revenue from package express and charter service has increased in relative importance. In 1976 passenger miles were 67.4 percent of what they were in 1965. Whether Amtrak has increased the relative decline in passenger revenue is conjecture.

CONCLUSIONS

The fact that Amtrak parallels the Carolina Coach route from Richmond to Fayetteville is the only evidence that Amtrak may be diverting passengers from Carolina Coach. This fact only shows, however, that the potential for diversion exists and not that it is occurring. Data are unavailable to substantiate diversion.

> "There is no question that Mount Hood has been injured substantially by Greyhound."

The compliance by Greyhound has had a significant positive impact on Pacific Trailways passengers and revenue. In 1974 net operating revenues before taxes were $557,089 compared to $267,911 in 1973. The number of intercity passenger miles increased from about 53 million miles to about 65 million miles. The compliance by Greyhound makes it difficult to assess Amtrak's impact.

AMTRAK COMPETITION WITH PACIFIC TRAILWAYS

Pacific Trailways does not parallel the Amtrak routes through Oregon; however, it does compete with Amtrak for north-south through-traffic from Portland to Klamath Falls, Oregon; and the east-west traffic from Portland to Boise, Idaho, to Salt Lake City.

The Amtrak east-west route from Portland to Boise runs to the north of the Pacific Trailways route through Oregon; both converge at Ontario, Oregon. The Amtrak north-south route from Portland to Klamath Falls runs to the east of the Pacific Trailways route and is a more direct route to Klamath Falls.

In a statement before the ICC's Rail Services Planning Office, the president of Pacific Trailways stated:

> "Our operations are exceedingly vulnerable to the subsidized Amtrak competition. When the Seattle-Salt Lake City Amtrak operation was started our Portland sales declined 31 percent the first month, 19 percent the second, 34 percent the third, and 10 percent the fourth month."

Amtrak service on this route started in June 1977. It should be pointed out that these percentage declines refer to ticket sales for Pacific Trailways and other bus companies. For example, the 31-percent decline in total sales was actually a 14-percent decline in Pacific Trailways' revenue. The 19- and 34-percent declines were actually 12-percent declines; and the 10-percent, a 3-percent decline in Pacific Trailways' revenue. Declines of this magnitude also occurred prior to Amtrak's starting in June 1977. April witnessed a 9-percent decline; February, an 18-percent decline; and January, an 11-percent decline. It appears that other factors besides Amtrak caused declines in ticket sales at Portland. The president of Pacific Trailways thought the decline in February might be due to adverse weather conditions.

slightly better than the company as a whole. If Amtrak were significantly affecting passenger traffic on this route, one would expect the route to perform slightly worse than average, other things being equal. The Pacific Trailways president thought the better performance on the Boise-Salt Lake City route was due to Greyhound's compliance with the court order to show Pacific Trailways connections on its schedules and special reduced fares which would have increased ridership.

The aggregate financial data for 1976 and 1977 corresponds to the increases in passengers and passenger miles. From 1976 to 1977, operating revenues before taxes increased by 17.7 percent, 1/ net operating revenue by 67 percent, and net income by 74.9 percent. 2/

The regular Amtrak fares are comparable to the regular Pacific Trailways fares for the trip from Portland to Salt Lake City. When Amtrak started in June 1977, the one-way fare was $55 and Pacific Trailways' was $55.45. On October 30, 1977, Amtrak raised its fare to $57, and Pacific Trailways raised its fare to $58.20 on January 13, 1978. The fares are so close that it does not appear to give either mode an advantage.

CONCLUSIONS

Both Amtrak and Pacific Trailways provide east-west through-traffic between Portland, Boise, and Salt Lake City. Therefore, Amtrak has the potential to divert passengers from Pacific Trailways. As evidence that this is occurring, Pacific Trailways points to the drop in Portland ticket sales in the month Amtrak commenced service on this route.

Pacific Trailways passenger data for the Portland to Salt lake City route, however, does not indicate that Amtrak has been an impact on this route. The route, in fact, has performed better than the company as a whole in 1977. The company had significant increases in revenue and profits in 1977 over 1976 when Amtrak was not in service along the route. From the available information, it is difficult to support the allegation that Pacific Trailways is exceedingly vulnerable to Amtrak competition.

1/Operating revenue less operating expenses.

2/Of this figure, 36.8 percent was due to the sale of stock.

company as a whole. At the time of our review, Amtrak data was not available to compare changes in Vermont Transit ridership with Amtrak ridership. Table III-9 (See p. 88) shows the decline in passengers and passenger miles for the two routes and the company as a whole.

The data in the table does not lend itself to any firm conclusions. The Burlington-Springfield route, which parallels Amtrak, appears to perform slightly better than the company as a whole. In 4 of the 6 years, passengers and passenger miles gained more or dropped less than the overall company data. The Burlington to Albany route, which competes indirectly with Amtrak, was better than the company as a whole in only one year, 1974. In the other years, it was worse off. The changes from 1971 to 1977 reaffirm the conclusion that the Burlington-Springfield route is better off, and the Burlington-Albany route worse off than the company as a whole.

Financial condition of Vermont Transit

The company's financial data confirms the decline in intercity passengers. By 1977, net operating income had fallen to $352,169 from $493,252 in 1971. This represents a drop of 28.6 percent. Total net income had dropped 18.4 percent during the period 1971 to 1977. In 1971 passenger revenue was 79.6 percent of total revenue, but by 1977 it had dropped to 69.6 percent. Despite declining profitability, the company has maintained a respectable operating ratio. In 1976 the company's ratio was 93.6 compared to the industry's 95.5. The decline in passenger revenue appears to be the main factor in the decline in company profits.

CONCLUSIONS

It is difficult to conclude what impact Amtrak has had on Vermont Transit. The company's route which parallels Amtrak has suffered less decline than the company as a whole. The route that indirectly competes with Amtrak has suffered more declines in passengers and passenger miles. And, Vermont Transit's total intercity passenger service, net operating revenue, and net income have declined since 1971.

ADIRONDACK TRANSIT LINES, INC.

Adirondack Transit Lines, Inc., headquartered in Kingston, New York, is a member of the National Trailways Bus System. The company is often referred to as Adirondack Trailways, but it is not a division of Trailways, Inc. The company operates about 60 buses over 1,084 route miles, and employs about 175 people. It serves New York State, but is classified as an interstate bus company because it passes through Paramus, New Jersey, to serve New York City. It operates out of the Port Authority Bus Terminal in New York City to New Paltz, Kingston, and Oneonta, New York. It also operates to Albany, Schenectady, Saratoga, Glens Falls, and on north to Lake Placid, Saranac Lake, and Massena, New York. Many intermediate cities and villages in-between these cities are served. It is directly competitive with Amtrak's service between New York City, Albany, and Schenectady.

Adirondack's gross revenue in 1977 was $6,433,000. Its operating ratio was 93.9 percent, which actually reflects an improvement over prior years, as shown below.

TABLE III-10

Comparison of Operating Ratios

Year	Operating ratio Reported to ICC	Operating ratio if New York State subsidy is subtracted
	(percent)	
1968	97.7	-
1969	96.0	-
1970	99.3	-
1971	95.7	-
1972	a/100.6	-
1973	96.0	-
1974	96.0	96.2
1975	94.9	96.5
1976	92.8	96.0
1977	93.9	b/96.5

a/Adirondack experienced a work stoppage from April 1 through April 20, 1972.

b/This is only speculation on our part. The operating ratio could have been considerably different without the subsidy, because Adirondack might have readjusted service to compensate for greater losses.

TABLE III-11

Chronology of Adirondack and Amtrak Fares--Albany to New York City--From Amtrak's Beginning (Using Roundtrip Fares Only)

Adirondack fare change date	New Adirondack fare	Amtrak fare change date	New Amtrak fare (excursion)
1970 thru Mar. 31, 1971	$12.85	-	-
Apr. 1, 1971 thru May 14, 1972	13.50	Jan. 1972	$ 9.00
May 15, 1972 thru June 6, 1974	14.25	June 1972	8.25
June 6, 1974 thru May 29, 1975	15.20	Oct. 1974	11.00
		Nov. 1974	14.00
May 30, 1975 thru Jan. 7, 1976	16.00	Dec. 1975	15.50
Jan. 8, 1976 thru Feb. 6, 1976	17.90	-	-
Feb. 6, 1976 thru Mar. 31, 1976	19.00	-	-
Apr. 1, 1976 thru June 30, 1976	13.45	Apr. 1976	13.50
		June 1976	14.50
July 1, 1976 thru Nov. 21, 1976	19.95	-	-
Nov. 22, 1976 thru Mar. 24, 1977	20.75	Dec. 1976	15.50
Mar. 25, 1977 thru May 15, 1977	21.95	-	-
May 16, 1977 thru Jan. 13, 1978	23.00	June 1977	16.50
Jan 14, 1978 thru May 9, 1978	24.15	Apr. 1978	17.50
May 10, 1978 thru June 14, 1978	17.45	June 1978	19.50
June 15, 1978 thru Sept. 30, 1978	24.15	Sept. 1978	17.50

APPENDIX III

TABLE III-12

Passengers, Bus Miles, and Revenue Passenger Miles for Adirondack Transit, 1970-78

Year	Passengers		Bus miles		Revenue passenger miles	
	Number	Percent change	Number	Percent change	Number	Percent changes
1970	1,220,862	-	6,892,378	-	128,190,510	-
1971	995,772	-18.4	5,226,790	-24.2	103,959,871	-18.9
1972	850,805	-14.6	4,708,839	- 9.9	95,477,478	- 8.2
1973	874,153	+ 2.7	4,642,114	- 1.4	99,306,583	+ 4.0
1974	939,420	+ 7.5	5,073,986	+ 9.3	92,348,700	- 7.0
1975	804,893	-14.3	4,374,591	-13.8	82,716,634	-10.4
1976	787,503	- 2.2	4,377,038	+ .1	81,472,578	- 1.5
1977	667,457	-15.2	4,394,211	+ .4	80,094,960	- 1.7
1978 (thru June)	328,887	-	-	-	-	-

Note: Adirondack's service frequency has remained relatively constant since 1971. The only significant change has been the elimination of backup buses to absorb overflow traffic on weekends from New York City. This accounts for most of the reduction in bus miles.

APPENDIX III

REVIEW OF VARIOUS ECONOMETRIC MODELS THAT ARE RELEVANT TO THIS REPORT

In the course of our study, we reviewed a number of econometric models of the market for rail passenger service. We had hoped to find an estimate of the effect of rail fares on the demand for bus transportation. Unfortunately, we could not locate any study that answered our question exactly and that we could assess for its reliability. The information we found was consistent with the conclusions presented in chapter 4, but because of various weaknesses discussed in this appendix, none of these studies constitutes proof of any particular effect.

In these studies, the crucial statistic is the "cross elasticity of demand" between rail fares and the demand for bus transportation. This statistic is defined as the percentage change in bus ridership divided by the percentage change in rail fares. For example, if it were observed that a 10-percent increase in rail fares caused an 8-percent increase in bus ridership, the "cross elasticity" would be 8 percent divided by 10 percent, or 0.8. The larger this figure, the larger the impact of rail fares on the bus industry.

In preparing this report, we also had hoped to find independent studies of the cost structure of the intercity bus industry, but none were available. By providing data on how much expenses would have to increase as bus ridership increased, such studies would have enabled us to be much more precise about the effects that an increase in bus ridership due to changes in Federal policies toward Amtrak would have on the net income of bus companies. The lack of cost studies and of detailed cost accounting systems within the bus industry, upon which such studies must be based, represent a significant gap in the information available about the intercity bus industry.

DISCUSSION OF ECONOMETRIC MODELS

Most of the econometric models that are relevant to this study that have been discussed in the economics literature deal with factors affecting the demand for train service, especially in the NEC. Some of these also include information on the relationship between trains and intercity buses, but none of these studies has the explanation of changes in bus ridership in response to the price and service characteristics of trains as its primary focus. The age and quality of data and technical problems which arise in estimating cross elasticity coefficients limit severely the degree of

In the current model, Amtrak patronage is predicted with multiple regression analysis. 1/ This methodology explains the dependent variable--Amtrak ridership--based on the variations in a set of independent variables such as the fares, travel time, service frequency of the different modes, and characteristics of various cities served by Amtrak. The model finally adopted was based on extensive testing of different equations and alternative forms of the variables. It was composed of separate submodels for different sections of the country.

In formulating its model, Amtrak recognized that it competed with buses for a share of the market. Amtrak stated:

> "Promotional bus and standard bus fares demonstrated an elasticity that clusters between 0.4 and 1.0 with few exceptions." 2/

In the NEC, Amtrak's submodel includes no information on buses. In eastern markets, altering bus fares results in a substantial change in train ridership. The cross elasticity between bus fares, both promotional and regular, and train ridership is between 0.2 and 1.8. 3/ Due to problems in the analysis, no western regional submodel was proposed. 4/

Amtrak's decision to use a model which exhibits no cross elasticity between bus service characteristics and train ridership is, in part, the result of limitations of statistical techniques. As we show in chapter 4, the bus companies in the NEC consistently adjust their prices to be below Amtrak's. This means that Amtrak's prices in the NEC do not vary independently. When two variables move in such similar patterns, current statistical techniques

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1/Amtrak Fare Elasticity Model: Impact on Amtrak City-Pair Passenger Demand of Changes in Rail and Competing Modes' Fares, July 1978, Marketing Research Department, Amtrak.

2/Ibid, p. 9.

3/The absolute value of this coefficient depends upon the relative size of Amtrak and intercity bus passenger volumes in various markets. This means the cross elasticities in various regions cannot be directly compared.

4/Amtrak Fare Elasticity Model., p. 10.

THE NORTHEAST CORRIDOR IMPROVEMENT PROJECT/FINAL PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT MODEL 1/

This model was developed to forecast ridership changes in the NEC as the result of the extension of high-speed service from Boston to Washington, D.C. The environmental impact of changes in ridership by mode were then evaluated. The model estimates total demand for travel in the NEC and ridership by each mode. It is not a system of simple equations; rather, it simulates the responses of a representative sample of riders to the relevant characteristics of the modes, the riders, their trips, and their origins and destinations. The model estimated the responsiveness of the riders to various factors in their environment by synthesizing previous results.

Using the model, the environmental impact statement gave the following results: By 1990, the bus industry will be carrying 28 percent less passenger miles in the NEC than if the NEC had not been improved.

The model also estimates the cross elasticity between train fares and bus ridership. 2/ It was created by running the simulation several times and varying only train fares. The values are shown below:

Percentage Change in Train Fares and the Resulting Percentage Change in Bus Ridership

Rail fare	Bus passengers	Elasticity
+10	+ 7.7	+0.77
+20	+16.3	+0.82
-10	-49.0	+0.90
-20	-15.2	+0.76

1/Sources of the model: Two Year Report on the Northeast Corridor, U.S. Department of Transportation, Feb. 1978; Demand Methodology Volume I summary prepared for Northeast Corridor Project FRA/DOT, The Aerospace Corp., Mar. 1978; Northeast Corridor Improvement Project Final Programmatic Environmental Impact Statement, U.S. Department of Transportation, June 1978.

2/Internal FRA memo, Aug. 1978.

for some of the same passengers, so that a loss of Amtrak services would result in increased bus patronage.

The Aerospace model has the most interesting results. It estimates a cross elasticity between bus ridership and train fares that ranges between 0.76 and 0.90. This implies that Amtrak fare policy has a significant impact on the bus industry in the NEC. This model's estimates of the proportion of Amtrak passengers who would take intercity buses are also close to those we have estimated in appendix I, by a different methodology. But because the model was proprietary, we were unable to adequately investigate and verify the model.

(97416)

This table reveals a fairly strong relationship between train fares and bus ridership. This is consistent with bus and Amtrak marketing strategies. Each mode does set fares with an awareness of the cross elasticity effects. This is also consistent with the decrease in bus ridership in the NEC described in chapter 4 that occurred when Amtrak fares were reduced in 1972.

At our request, this model was run to estimate in 1982 the proportion of Amtrak passengers in routes connecting 17 city pairs who would take the bus if Amtrak services were cut back or eliminated. The results are as follows:

--If the Northeast Corridor Improvement Project were terminated, the model projects that Amtrak ridership would decrease by 3.1 million passengers, 13 percent of whom would take intercity buses.

--If, in addition, existing Metroliner service were terminated, the model projects that Amtrak ridership would decrease by another 0.7 million, 14 percent of whom would take intercity buses.

--Finally, if all conventional Amtrak services were also terminated, the model projects that Amtrak ridership would decrease by still another 8.5 million passengers, 36 percent of whom would take intercity buses.

The estimates in this model of the proportions of Metroliner and non-Metroliner passengers who would take the bus if Amtrak services did not exist are very close to the upper limit of the range which we estimated by other means in appendix I. (See table I-9 and the accompanying discussion in the text.)

Until quite recently, this model was considered proprietary and not available for review. A private consulting firm, the Aerospace Corporation, developed and ran the model. The NEC Improvement Project told the Aerospace Corporation what assumptions to put into the model and used the results as a basis for the environmental impact statement. Thus, we were unable to evaluate and analyze the model and determine its usefulness.

CONCLUSION

The evidence from these models is consistent with our qualitative conclusion that Amtrak has diverted passengers from buses. The models show that the two modes compete

cannot distinguish their impact on the dependent variables. From Amtrak's point of view, the changes in its own fares are the crucial variable needed to predict ridership. Since buses vary their prices with train prices in the NEC, no cross elasticity for that area can be calculated with available statistical techniques. But this does not prove that no relationship exists--it merely means that available statistical techniques cannot estimate it. The fact that buses do change their fares when train fares change suggests that they believe the cross elasticity of demand to be very strong.

THE FRA MODEL FOR THE CONCURRENT STUDY "A REEXAMINATION OF THE AMTRAK ROUTE STRUCTURE" 1/

This major study by the FRA predicts rail ridership on all segments of Amtrak. Based on these ridership projections, the FRA will recommend the routes that should remain in the Amtrak system.

The model does not include any bus service characteristics; it was not designed to investigate the interaction of the bus and rail markets. Rather, it was designed to give reasonable estimates of Amtrak ridership by route.

Because Amtrak's market is not totally and exclusively related to the bus market, the model broadly and correctly predicts Amtrak ridership even without bus data. Only if the relative service characteristics of the bus and Amtrak were to drastically change would this model prove inadequate for the FRA study.

For its purpose, FRA included a reasonable set of variables. But this policy model, which helps to focus FRA policy decisions on Amtrak, is incapable of dealing with any intermodal problems and may incorrectly leave policymakers with the impression that the bus and train have no effect on each other.

1/Preliminary Report to Congress and the Public, A Reexamination of the Amtrak Route Structure Technical Appendix: Demand, Route and Equipment Analysis, July 1978, Peat, Marwick, and Mitchell.

confidence which can be placed in particular coefficients--a point freely acknowledged by persons making the studies.

Economic theory suggests that where two modes of transportation that substitute for one another compete in the same markets, the cross elasticity coefficients should be fairly high. There are several studies which have estimated relatively high cross elasticity coefficients, but some of the models that we were able to examine which have the functional form that includes the cross elasticity of demand for bus service provide no estimate at all, or provide results which are unreliable. For example, in the Kraft-SARC model, the authors, for technical reasons, simply set the cross elasticity of demand for bus service with respect to train price at zero.

Another family of models of the NEC known as the CN models contain cross elasticity estimates for all transportation modes. But in these models, the relationship between rail and intercity bus service is not adequately represented due to the overall dominance of automobile travel in the estimating procedures for all coefficients in the model.

The Intercity Rail Passenger Demand Models, a staff study produced by the Transportation Systems Center of the Department of Transportation in October 1977, shows that variation in the ratio of train fares to bus fares has a significant impact on rail ridership. For example, it suggests that if train fares went up by 20 percent and bus fares stayed the same, rail ridership would decline by about 14 percent. The model does not, however, project the effect of this change on bus ridership.

The rest of this section will concentrate on the models that are actually used as a basis for Federal policy and Amtrak marketing. The models include insights of previous models because the Amtrak models and Federal models are based on the previously developed estimates.

Amtrak's models

Amtrak's marketing department periodically develops econometric models to predict Amtrak ridership. Because Amtrak's concern is train ridership, Amtrak's models only discuss the impact of bus service characteristics on Amtrak patronage. But it is reasonable to believe that if bus service characteristics affect Amtrak patronage, the reverse is also true.

CONCLUSIONS

From the preceding information, it is apparent that Amtrak is having some effect on Adirondack: Adirondack's ridership is dropping at a significant rate; Greyhound is also losing ridership on this route. Amtrak's ridership is growing, but at a lesser rate. Therefore, it is apparent that Amtrak is gaining some of the bus ridership, but by no means all of it. Other factors are apparently involved which ridership statistics will not show. It should be noted that our statistical comparisons were of Adirondack's total system ridership versus Amtrak's Albany to New York City data. A direct one-for-one comparison could not be made.

It is difficult to draw conclusions regarding the effects of fare competition. Clearly, the fare competition is keen. The recent Amtrak increase from $17.50 to $19.50 followed in 3 months by a drop to $17.50 indicates the competition is sometimes vicious. Without studies of sensitivity to fare changes, it is difficult to determine the real effect of fare competition.

Other factors which affect ridership, but cannot be measured, are the upgrading of Amtrak's track, improved station facilities, new equipment, and extensive local advertising. Some of the associated costs of these improvements are borne by the State of New York, not Amtrak.

In conclusion, Amtrak, by its mere existence, is drawing some bus riders, but not enough to account for the dramatic decreases in Adirondack's ridership.

Table III-12 (see p. 93) shows the decline in Adirondack's business since 1970. Bus company passenger boarding data could not be broken down by city pairs to show direct competition with Amtrak. All buses, however, operate from all points to or from New York City. The most populous cities along the route are also served by Amtrak. Thus, we could make a reliable--albeit inexact--analysis of Amtrak's possible effect on Adirondack. The next table--table III-13--shows Amtrak's ridership growth along this route.

TABLE III-13
Amtrak Passenger Data--1972-78--Albany-New York City in Calendar Years

	Passengers		Passenger miles	
Year	Number	Percent change	Number	Percent change
1972	(a)	(a)	(a)	(a)
1973	(a)	(a)	(a)	(a)
1974	(a)	(a)	(a)	(a)
1975	361,929	-	43,101,332	-
1976	384,874	+6.3	46,007,120	+6.7
1977	394,249	+3.1	47,474,198	+3.2
1978 (thru June)	205,425	-	24,790,517	-

a/Data is unavailable.

Note: Amtrak ran five trains in 1972 between Albany and New York City. It now has eight trains plus an additional weekend train on this route.

The financial picture is somewhat distorted, however, because New York State began subsidizing Adirondack in 1974, as shown in the right column of table III-10. This makes their operating ratio better. If the subsidy were removed, the ratio would be 96.5 percent in 1977 rather than 93.9.

COMPETITION WITH AMTRAK

Adirondack has two primary competitors--the Greyhound Corporation and Amtrak. Adirondack and Greyhound fares are about the same. Fare competition between Adirondack and Amtrak has been active on the Albany-New York City route, as shown in table III-11 on the following page.

TABLE III-9

Passengers and Passenger Miles for Vermont Transit and Competitive Amtrak Routes, 1972-77

Year	Passengers: Percent change from previous year			Passenger miles: Percent change from previous year		
	Vermont Transit	Burlington-Albany route	Burlington-Springfield route	Vermont Transit	Burlington-Albany route	Burlington-Springfield route
1972	- 4.1	- 6.2	-1.5	- 5.0	- 5.6	+ 2.3
1973	+ 4.7	- 3.0	+ .3	+ 3.4	- 3.1	- 1.9
1974	+ 9.8	+11.4	+9.8	+ 7.1	+11.2	+ 8.8
1975	-11.2	-14.3	-8.0	-14.1	-15.2	-14.1
1976	- 3.4	- 7.7	-2.5	- 4.0	- 8.8	- 1.2
1977	- 4.9	- 9.2	- .5	- 5.5	-10.5	- 1.0
1971-77	-10.1	-27.3	-3.2	-17.9	-29.7	-12.4

APPENDIX III

VERMONT TRANSIT

The Vermont Transit Company, Inc., headquartered in Burlington, Vermont, is a subsidiary of the Greyhound Corporation. It serves cities in Vermont, New Hampshire, Massachusetts, Maine, and New York. The company's president estimated that about 90 percent of its regular routes are interstate, and 70 percent of its business is from regular-route service.

During the 1970s, Vermont Transit has been experiencing relative declines in its intercity passenger revenue. In 1969 this revenue comprised almost 79 percent of total revenue and by 1977 had fallen to about 70 percent. The number of intercity passengers carried dropped from 713,250 in 1971 to 641,310 in 1977. In 1976 the company could be categorized as a medium-sized Class I carrier, with total operating revenue of about $6.4 million and total assets of about $2.7 million.

COMPETITION WITH AMTRAK

Amtrak and Vermont Transit have approximately parallel routes from Burlington/Essex Junction, Vermont, to Springfield, Massachusetts. This route is part of the larger Amtrak route from New York City to Montreal. Vermont Transit serves as a bridge carrier between New York and Montreal but does not directly serve those cities. Amtrak has another route to the east which also connects New York City and Montreal but does not parallel the Vermont Transit route. This route, however, competes with Vermont Transit for through-traffic from Burlington to Albany.

Amtrak began competing with Vermont Transit in late 1972. The president of the company felt that Amtrak competed with his company along the two routes mentioned above. For the Vermont Transit route which parallels Amtrak, the president felt that in 1973, one Vermont Transit schedule from Springfield to Newport, Vermont, was dropped specifically because of Amtrak. He further indicated that competition with Amtrak is significant because the loss of just a few passengers could be the difference between profit and loss. He thought private automobiles, however, were the company's primary competitor.

Vermont Transit route data

An examination of passengers and passenger miles for the two routes competing with Amtrak does not provide any clear pattern of passenger diversion when compared to the

To determine how Amtrak has affected Pacific Trailways, we examined passenger data on the company's Portland-Boise-Salt Lake route because this route appeared to be in more direct competition with Amtrak than the Portland-Klamath Falls route.

Portland to Salt Lake City Competition

The president of Pacific Trailways felt that the 1977 reduction in ticket sales for selected months at the company's Portland office was an indication of Amtrak's impact. The passengers and passenger miles for the route from Portland to Salt Lake City, however, do not coincide with the reduction in ticket sales. In fact, passenger miles for 1977 were above 1976 for this route.

Tables III-7 and III-8 compare the change in passengers and passenger miles from 1976 to 1977 for all Pacific Trailways intercity routes and for the Portland-Boise-Salt Lake City route.

TABLE III-7

Change in Passengers

Year	Total intercity passengers	Percentage change, 1976-77	Portland-Salt Lake City route passengers	Percentage change, 1976-77
1976	213,894	-	134,783	-
1977	234,154	+9.5	153,839	+14.1

TABLE III-8

Change in Passenger Miles

Year	Total intercity passenger miles	Percentage change 1976-77	Portland-Salt Lake City route passenger miles	Percentage change 1976-77
1976	56,414,234	-	43,834,864	-
1977	76,591,890	+35.8	61,007,176	+39.2

There are two significant aspects to be shown by these tables. First, the increases in number of passenger miles do not correspond to the drop in Portland ticket sales and second, the Portland-Salt Lake City route increases are

MOUNT HOOD STAGES, INC. 1/

Pacific Trailways is a privately held company headquartered in Bend, Oregon, serving various cities in Utah, Idaho, and Oregon. It is a member of the National Trailways system, providing east-west through-service from Salt Lake City, Utah, to Portland Oregon, and part of the north-south through-service from Spokane, Washington, to San Francisco, California, via Portland. The company depends on its through-traffic for its profitability.

In 1976 Pacific Trailways derived 64.2 percent of its revenue from intercity regular-route passenger revenue. Surprisingly, this is an increase from 61.2 percent in 1969 because most Class I intercity carriers have become more reliant on charter and package express revenue. In 1977 the company had total assets of about $3.1 million, and the company's operating ratio was above the industry average from 1971 to 1973 but below the average from 1974 to 1976.

In 1968 Pacific Trailways filed an anti-trust suit against Greyhound Lines Inc., for practices which it alleged were intended to stifle competition and injure or destroy the former. One of these practices was not providing passengers with information on Pacific Trailways routes that connect with Greyhound and circuitously routing passengers around Pacific Trailways. Greyhound did not begin to list Pacific Trailways service until 1973. In 1977 the U.S. Court of Appeals sustained an award of $14.4 million in damages to Pacific Trailways. The case was appealed to the U.S. Supreme Court by Greyhound, and in 1978 the Court ruled that the District Court and the Court of Appeals had incorrectly decided a statute of limitations issue. The case was remanded for futher proceedings. However, the Court suggested in a footnote that Pacific Trailways might prevail on other grounds. Mr. Chief Justice Burger wrote in his concurring opinion:

> "* * * Given the Court's analysis of the legal issues involved here, the opinion today has no occasion to focus on Greyhound's egregious behavior toward Mount Hood Stages--aimed at total destruction of a competitor.

1/Mount Hood Stages, Inc., is doing business as Pacific Trailways.

TABLE III-5

Richmond-Fayetteville Route Changes in Passenger Miles, Passengers, and Bus Miles

Year	Passenger miles/change: Passenger miles	Passenger miles/change: Percent change from previous year	Passengers/change: Passengers	Passengers/change: Percent change from previous year	Bus miles/change: Bus miles	Bus miles/change: Percent change from previous year
1971	77,353,745	-	606,198	-	3,043,970	-
1972	51,159,200	-33.9	432,191	-28.7	2,286,748	-24.9
1973 (note a)	51,473,273	+ .6	423,573	- 2.0	2,141,856	- 6.3
1974 (note b)	52,556,354	+ 2.1	389,191	- 8.1	2,002,447	- 6.5
1975	59,759,475	+13.7	453,893	+16.6	2,530,727	+26.4
1976	59,809,634	+ .1	441,973	- 2.6	2,575,908	+ 1.8
1977	57,830,795	- 3.3	414,915	- 6.1	2,369,819	- 8.0

a/Carolina Coach strike commenced December 1973.

b/Months April through December.

TABLE III-6

Changes In Passenger Miles, Passengers, and Bus Miles on Richmond to Fayetteville Route

Year	Comparison of passenger miles with previous year: Carolina Coach	Comparison of passenger miles with previous year: Richmond to Fayetteville	Comparison of passengers with previous year: Carolina Coach	Comparison of passengers with previous year: Richmond to Fayetteville	Comparison of bus miles with previous year: Carolina Coach	Comparison of bus miles with previous year: Richmond to Fayetteville
1972	-20.2	-33.9	-13.3	-28.7	-12.4	-24.9
1973 (note a)	- .5	+ .6	- 5.1	- 2.0	- 5.3	- 6.3
1974 (note b)	-17.7	+ 2.1	-34.3	- 8.1	-23.3	- 6.5
1975	+17.6	+13.7	+17.5	+16.6	+20.6	+26.4
1976	- 6.2	+ .1	- 6.7	- 2.6	- 2.4	+ 1.8
1977	- 8.0	- 3.3	- 8.5	- 6.1	- 5.8	- 8.0

a/Carolina Coach strike commenced December 1973.

b/Months April through December.

APPENDIX III

charter service revenue has become more significant. Amtrak appears to have facilitated and perhaps accelerated the relative decline in passenger revenue.

CAROLINA COACH COMPANY

The Carolina Coach Company is totally controlled by the North American Phillips Corporation. The company operates 3,719 miles of intercity bus service in North Carolina, Virginia, Maryland, Delaware, New Jersey, and Pennsylvania.

In 1976 the company was the third largest Class I carrier in terms of total, and intercity regular-route revenue. Greyhound and Trailways were first and second, respectively. The company derived 75.1 percent of its 1976 revenue from passengers on intercity regular routes. Greyhound Lines and Continental Trailways derived 70.1 percent and 60.3 percent of their revenue, respectively, from intercity regular route passengers. Carolina Coach is heavily dependent on intercity regular-route revenue.

The company is also one of the more profitable carriers in the industry. In 1976 it had an operating ratio of 84.4 compared to the industry average of 95.5 percent. Return on equity was 15.9 percent compared to 8.3 percent for Class I carriers. In 1977 the company had assets totaling $13.6 million.

AMTRAK VS. CAROLINA COACH

Amtrak is in direct competition along two of the company's north-south routes. One route is from Richmond, Virginia, to Raleigh, North Carolina; and the other route, from Richmond to Fayetteville, North Carolina.

The Richmond-Fayetteville route was selected to determine Amtrak's impact on Carolina Coach because data for the Richmond-Raleigh route is not maintained separately in corporate records. The treasurer of the company believed that the Richmond-Fayetteville route would be the one most comparable with Amtrak's. He further indicated the effect of Amtrak would be difficult to determine, but Amtrak has some effect because the bus and train are appealing to the same market.

Amtrak's effect on the Richmond-Fayetteville route

The evidence available at Carolina Coach that Amtrak was affecting its Richmond-Fayetteville route was data

A study conducted by the Michigan Department of Transportation attempted to determine how many Amtrak passengers could not have been diverted from riding the bus. Their methodology was to have Amtrak passengers complete a questionnaire and from this information determine whether the passenger could not have been diverted from the bus. The study results indicate that 76.3 percent of the Amtrak passengers could not have been diverted from the bus or, in other words, 23.8 percent had the potential to be diverted from the bus. The study also shows that potential diversion from auto was 55 percent, and from air travel, 28.6 percent.

Factors which make it difficult to say specifically how many bus passengers have been diverted by Amtrak follow. The Michigan intercity bus industry had been declining prior to the start of Amtrak. A Michigan Department of Transportation study concludes that from 1968 to 1972, patronage on intercity buses operated in Michigan declined by more than 15 percent; bus miles operated decreased by 12 percent; and passenger miles decreased by more than 7 percent. From 1971 to 1973, before the start of Amtrak's Chicago-Port Huron route, the number of Indian Trails' intercity passengers decreased by 11.9 percent.

Another factor to consider is that in 1971, rail passenger service was terminated to Lansing and Flint. This was not resumed again until 1974. It is, therefore, possible that during this period, 1971 to 1974, people that preferred to ride the train were forced to take the bus and thus increased Indian Trails' boardings. Resumption of rail service allowed these people to return to their preferred mode.

The Federal Railroad Administration recently completed a review of the suspension of rail service in 1971 and Indian Trails' boardings. This analysis concluded that when rail service was discontinued, Indian Trails' ridership increased 6 percent per month above the annual decline rate. When the rail service was started again, the FRA estimated, based on train and bus ridership, that only two of every nine passengers on the train would be riding the bus if the train were discontinued.

A third factor which clouds a firm figure on diversion is that the State of Michigan has provided operating assistance to Indian Trails from November 1975 to May 1978. This assistance was a guarantee that the company would receive its direct line operating costs on roundtrip express runs

According to table III-2, passenger revenue decreased as a percentage of total revenue from 65.1 percent in 1971 to 44.9 percent in 1977. Special bus revenue or charters increased from 25.0 percent to 47.1 percent in the same period.

Amtrak service and ridership

Amtrak competes with Indian Trails along two basic routes:

--One between Chicago and Detroit, serving Kalamazoo. This route competes with Indian Trails' Chicago/ Kalamazoo traffic.

--The other between Chicago and Port Huron, with stops at Kalamazoo, Battle Creek, East Lansing, and Flint. The traffic between Chicago and these stops also competes with Indian Trails.

One Amtrak roundtrip was started on the Chicago-Port Huron route in September 1974. For the Chicago-Detroit route, two roundtrips were in service in 1974 and a third was added in May of 1975. A comparison of July 1978 running times between Indian Trails and Amtrak for the Chicago-Flint route indicates the best elasped times are all within 25 percent of each other.

It is difficult to compare the Amtrak data available on passenger boardings to the Indian Trails' data. The Indian Trails' data shows boardings between two specific points, whereas the Amtrak data indicates only the number of people getting on and off the train at a specific point. From the Amtrak data, we can show how many people boarded and departed along the route from Chicago to Flint and compare this figure to Indian Trails' total boardings. This comparison is shown in table III-3 on page 75.

The major drop in boardings occurred in 1975, the first year of full Amtrak service between these cities. It should also be pointed out that Indian Trails schedules were also changed during this time period, which would affect the boarding data. In a statement before the Subcommittee on Transportation and Commerce, House Committee on Interstate and Foreign Commerce, the president of Indian Trails indicated:

> "Following the introduction of Amtrak's competitive rail service the frequency of our service has been curtailed,* * *"

With fewer bus schedules, the opportunity for boardings would decrease. For example, July 1975 witnessed two fewer schedules between Chicago and Flint, and three fewer between Chicago and Kalamazoo. In 1977 there was again a drop of two schedules between Chicago and Kalamazoo.

Table III-1 indicates the most significant drop in Indian Trails' passengers occurred in 1975, which was the first full year of Amtrak service on Indian Trails' routes. The frequency of Indian Trails' service was curtailed following the introduction of Amtrak. The drop in boardings and the curtailment of schedules correspond to the introduction of Amtrak.

The operating revenues for Indian Trails also reveal the deterioration of intercity passenger revenue over the period 1971 to 1977 as shown in table III-2. (See p. 73.)

By controling fares and limiting entry and exit from the interstate portion of the intercity bus industry, the ICC can try to protect profitable areas from competition in return for requiring service to unprofitable areas. As bus company profits have fallen, cross-subsidization has become less possible.

Urban Mass Transportation Administration-funded transit authorities

In recent history, the Urban Mass Transportation Administration (UMTA) has provided significant operating and capital grants to local transit systems that may provide interstate commuter service. The major intercity carriers also provide commuter service. Currently, due to their subsidies, transit systems charge less than the interstate carriers, in some areas, but the ICC will not permit the interstate carriers to raise their fares and charge the same amount. This leads to losses.

> effective on Less Than Statutory Notice, they will, undoubtedly, suffer irreparable harm through loss of needed traffic, particularly between specific points. It is for this reason that this Application requests the issuance of an Outstanding Special Permission which may be used, not only in connection with the Reduced Fares which will be established by AMTRAK, effective June 11, 1972, but also may be used to meet similar reductions which can reasonably be expected at any time in the future." 1/

The ICC responded with a "Short Notice Order," which permitted the bus companies to quickly respond to Amtrak fare changes and ensure competition. The order contained the following justifications:

> "It appearing, That, The National Railroad Passenger Corporation (AMTRAK) has announced widespread reductions in Rail Coach Fares of from 10 to 25 percent in specified areas, and that reductions may be made in the future in areas other than those now specified;
>
> "It further appearing, That, AMTRAK can establish reductions without any statutory filings with the Commission or any other regulatory body;
>
> "It further appearing, That, unless intercity motor common carriers of passengers are authorized to make reductions to meet the competition of AMTRAK reductions on short notice they will suffer serious harm through loss of needed traffic;
>
> "It further appearing, That, the application has shown special or unusual circumstances which would warrant the granting of the authority sought;
>
> "IT IS ORDERED, That, all intercity motor common carriers of passengers subject to the Act are hereby authorized to publish and file, upon not less than 10 days' notice, reduced fares for the sole purpose of meeting reductions established or

---

1/Application No. SP-722 of NBTA Inc., Agent., May 19, 1972.

REGULATION OF FARES IN THE INTERCITY BUS INDUSTRY BY THE INTERSTATE COMMERCE COMMISSION AND STATE GOVERNMENTS

In 1935 Federal regulation was extended to the interstate motor bus industry. This regulation was established to stabilize markets, and ensure that reasonable levels of services and fares were maintained by all carriers. Regulatory authority was vested in the Interstate Commerce Commission. In part, its authority currently includes fares, entry and exit requirements, and the level of service provided.

The ICC is to promote a stable and viable industry and an integrated system of bus transportation. This does not necessarily mean that the bus industry is economically at its most efficient and profitable level.

The intercity bus industry is regulated at the intrastate level by State authorities. States apparently have been less willing to raise fares or permit service reductions. This has aggravated the financial strain on the industry. Trailways has identified 28 States where the prevailing State rates are from 1.5 percent to 30 percent below the ratio prevailing at the Federal level. According to Trailways, intrastate rates lagged 10 percent or more behind interstate rates in 16 States.

ICC PROCESS FOR SETTING FARES

Due to the 1948 Reed-Bullwinkle Amendment to the ICC act, the industry as a whole was permitted to propose general rate increases to the ICC. The general fare increases are formulated and proposed by the National Bus Traffic Association (NBTA), which acts as the industry's agent to the ICC and is called the industry's rate bureau. The NBTA also permits the industry to facilitate intercarrier negotiations and interline tariffs. It also aids companies in submitting specific rate changes and publishes tariffs. To perform this function, the NBTA collects and presents pertinent information to the ICC. Not all companies are members of the NBTA, and some companies make their own submissions to the ICC.

Criteria and rules followed by the ICC

Under the ICC act, the tariffs must meet the following criteria:

numbers that come from survey results. Answers to survey questions should be viewed as suggesting a general range of probable behavioral response.

It is also necessary to consider the reliability of the specific surveys of train riders discussed in this appendix. These surveys constitute an important source of information which is available for decisionmaking purposes. As stated earlier, we did not independently assess the methodology for these surveys or how well the surveys were executed. We did not independently validate survey results. The results of the surveys (often contained in internal memorandum form) contain only information about sample size and the tabulated responses. The information needed to evaluate the responses within statistically valid confidence limits is not presented with the survey results. In addition, there is no evidence about how the various surveys should be weighed to represent an accurate picture of total Amtrak service.

When added to the general problems of attitudinal surveys, the specific problems involved in interpreting the results of the surveys described in this appendix suggest the need for caution in using the surveys to make quantitative estimates of what would happen to the ridership on intercity buses if Amtrak services were terminated. The best that can be done with the existing data is to estimate a range on a judgmental basis that incorporates most of the survey responses.

We believe that a reasonable estimate of the higher part of the range of diversion potential is that about one-third of Amtrak's riders on conventional trains (and Amfleet) would take the bus if Amtrak services were discontinued. For Metroliners, which serve a different market, we believe that 12 percent appears to be more appropriate as an estimate of the higher part of the range of probable effect from discontinuing Amtrak service. Our estimate of the lower part of the range of probable effect is to arbitrarily reduce the upper estimates by 50 percent. The resulting estimates of the proportion of Amtrak riders who would take the bus if Amtrak service were terminated, used in chapter 4 of this report, is shown again in table I-9.

The rationale for our estimate of the upper range of diversion potential is as follows. In table I-9 the proportion of Amtrak riders on conventional trains who said they would ride the bus if Amtrak service were not available ranged between 15 percent and 37 percent, with a weighted average of 33 percent. The text also noted that Amtrak's

than Amtrak's inquiry about how the trip would have been made (if at all) if Amtrak services were not available. The response to the Greyhound Survey was as follows:

What Other Means of Travel Were Considered?

	NY/A	LA/SD	C/M	D/M	P/S-V
Bus	27	19	11	53	20
Auto	28	66	25	18	15
Air	19	9	9	8	15
Other	2	1	1	2	2
Only train	44	18	59	20	51
No answer		1		7	3

Between 18 percent and 59 percent of all the respondents would only take the train. Buses were an option for between 11 and 53 percent of the travelers. This data suggests that there appears to be considerable competition between Amtrak and intercity buses in some markets.

The survey also indicates one of the reasons why there are some significant differences in the markets served by bus and train--many riders indicated they were taking the trip as a novelty:

Percentage of Respondents Taking the Train as a Novelty

Amtrak Routes:	NY/A	LA/SD	C/M	D/M	P/S-V
	15	42	26	31	26

State Study

Michigan analyzed the extent of possible diversion of bus riders to Amtrak. Between various city pairs, they estimated that 23.8 percent of Amtrak riders could have come from the bus.

CONCLUSION

Taken as a whole, the surveys described in this appendix support the qualitative judgment that Amtrak probably has had and continues to have an adverse economic effect on the intercity bus industry where they compete with each other.

In these surveys, the weighted average of the responses on Amtrak's conventional trains indicate that about one third of the riders would have taken the bus. Only 12 percent of Metroliner riders would have taken the bus. In every case, more than half of the passengers said they would take the automobile or airplane. The difference between Metroliner and conventional diversion rates is consistent with the demographic and market segmentation studies which indicate that Metroliner riders are a special market segment which would tend to find airlines a substitute rather than the bus.

Amtrak's marketing department recently tested its Passenger Assessment Survey questionnaire, which will be regularly used to evaluate future Amtrak marketing. In 1978 this new survey instrument was given to all riders on a diverse set of non-Metroliner trains. Of those responding, 26.7 percent indicated they would take the bus if Amtrak service was not available.

In 1976 Amtrak used a survey to evaluate the impact of the new Amfleet cars. This survey asked respondents the factual question of what mode they previously had used. Other surveys discussed above asked people the hypothetical question, what would they do if their current choice was no longer available. Most of the Amfleet riders came from conventional trains. Amfleet did draw a significant portion of its riders from Metroliners and drew 14 percent of its riders from automobiles. It also drew between 2 and 7 percent of its riders from buses, with the smaller proportion being associated with the New York-Boston trains.

In contrast to all of the surveys described above, these surveys of Amfleet riders provide evidence of how specific policies adopted by Amtrak have affected the buses. All of the diversion shown below cannot be attributed to the new Amfleet equipment. The survey shows the importance of relative prices in determining mode choice. As shown in the following tabulation (which also includes survey results on two conventional trains), 31 percent of the respondents indicated the deciding factor for taking the train was a reduced fare:

TABLE I-7

Transportation Choices in Rail Corridors

(Base: those in rail corridors)

Mode (note a)	First choice	Second choice	Total first and second choices
	(percent)		
Cars	45	25	70
Airplanes	38	26	64
Buses	5	18	23
Trains	9	25	34
Not sure	3	6	9

a/Sample was taken from 884 people.

SURVEYS OF TRAIN RIDERS

Most of the recent surveys of train riders have been performed by Amtrak. 1/ However, these surveys were not targeted to examine closely the relationship between Amtrak and the intercity bus industry. Responses of Amtrak riders to the question "If Amtrak service were not available, by what means would you have made this trip?" are summarized by type of service in table I-8 on p. 59.

1/"Demographic/Attitudinal Research, Western Long Distance, Northeast Corridor." September 1976. Amtrak Marketing Department.

"Passenger Assessment Survey." August 1976. Amtrak Consumer Research Unit.

"Passenger Assessment Survey: Eastern--1977; Western--1977; Northeast Corridor--1977." Amtrak Consumer Research Unit.

Variation within the market served by Amtrak

Current Amtrak surveys of its passengers (1975, 1976, and 1978) have shown that different trains in the NEC appeal to different market segments. Selected characteristics of Metroliner, conventional train, and Amfleet weekday passengers are shown in table I-5. A much higher percentage of Metroliner passengers are males of high income, and on business trips than is true of passengers on the other trains.

TABLE I-5

Northeast Passenger Profiles

on Different Types of Trains (note a)

Characteristic	Metroliner	Conventional train	Amfleet total
	(weekdays)		
Male	70	45	53
Married	65	41	48
Income:			
Over $25,000	53	24	38
Under $10,000	8	28	19
Employment in professional, technical, managerial, or administrative occupations	71	37	44
Retired	3	11	6
Graduate degree	38	19	21
Business trips	67	18	43

a/Percent of total passengers showing characteristic specified.

riders on intercity buses and trains although the markets that they serve do overlap. The differences in the market characteristics of train and intercity buses are summarized in table I-4, which shows trips by train as a percentage of the trips taken by either the train or intercity bus. The percentage of trips by train in some sub-markets is significantly higher or lower than the overall 16.6 percent average for all trips. This table suggests that the train and bus do compete for some of the same intercity passenger travel.

TABLE I-3

Stated Purpose of Intercity Trip by Mode (note a)

Purpose	Bus	Auto (note b)	Auto (note c)	Train	Air	Total
Visit friends and relatives	32.6	42.9	16.6	40.1	32.8	38.4
Business and conventions	12.2	17.4	5.2	30.1	49.5	20.2
Outdoor recreation	7.0	10.2	53.0	2.1	2.5	12.5
Sightseeing and entertainment	30.7	12.3	18.8	17.2	12.6	13.3
Other	17.5	17.2	6.4	10.6	11.5	15.7

a/Source: ICC, based on 1972 Census of Transportation.

b/Auto transportation without camper.

c/Auto or truck transportation with camper.

TABLE I-1

Age Distribution of Passengers by Mode by Person-trips (note a)

Age of Traveler	Bus	Auto (note b)	Auto (note c)	Train	Air	Total
Under 18	30.0	25.3	35.4	16.8	9.0	24.1
18 to 24	7.9	8.7	7.9	11.8	6.3	8.4
25 to 34	10.9	16.5	16.8	17.9	19.7	16.7
35 to 44	8.4	15.3	14.7	10.8	21.8	15.9
45 to 54	10.8	16.3	13.1	13.8	23.5	16.8
55 to 64	12.9	9.9	6.6	15.4	10.6	9.8
65 and older	16.8	4.5	2.1	10.5	6.4	4.9
No answer	2.3	3.5	3.4	3.1	2.6	3.4

a/Source: ICC, based on 1972 Census of Transportation.

b/Auto transportation without camper.

c/Auto or truck transportation with camper.

modes of transportation by market segment. 1/ For example, the study prepared in 1971 for the Department of Transportation about travel in the NEC discussed 10 major market segments based on combinations of the following variables: 2/

--Trip purpose (business or other).

--Income of traveler.

--Number in traveling party.

--Length of trip.

--Center city or suburb origins and destinations.

The most recent national demographic survey of intercity travelers available is the 1972 National Travel Survey, which was collected as part of the Census of Transportation by the U.S. Census Bureau. This survey of 24,000 households, undertaken quarterly throughout calendar year 1972, includes information on travel by all the intercity transportation modes and classifies the information by various significant demographic characteristics. For purposes of this study, the survey has two significant limitations.

--It was undertaken before Amtrak began to improve service and increase its market share of the common carrier surface transportation market.

--It excludes trips under 100 miles.

1/Market segments (or markets) are ways of breaking down aggregate travel statistics into such categories which show who is traveling, why they are traveling, and where and when they are going. Depending on the reason for the analysis, a distinction can be made between the markets actually served and those that can be potentially served by a transportation mode. Two modes of transportation are said to compete in a market if a significant portion of the persons who travel view the two modes as substitutes for each other and make their choice on which mode to take for particular trips based on price and service characteristics.

2/Analysis of the Intercity Travel Market in the Northeast Corridor November 1971, Peat, Marwick and Mitchell.

of the industry must be viewed in a total economic context. The ICC was not able to evaluate the specific quantitative estimates in the report on the basis of the information available to it. The ICC noted that three petitions recently filed by Trailways would provide the Commission with an opportunity to examine the fare structure of the intercity bus industry, but indicated that the continued presence of Amtrak alone is not thought to be sufficient to warrant a radical change in Commission policy affecting fares in the intercity bus industry. The Commission also pointed out the need to recognize the potential impact that recently approved Federal assistance programs for the intercity bus industry may have on Amtrak and bus industry competition.

In the absence of data on cross-subsidization and on competition within the intercity bus industry, the ICC questioned the basis for our concluding comments regarding changes that may be needed in how buses are regulated by the Federal Government. The Commission does, however, state that it welcomes analyses and evaluation regarding its regulation of the intercity bus industry.

Our response

We recognize that additional analysis of the regulatory structure of the intercity bus industry would be necessary before recommending specific changes in present regulations. Our concluding comments concern areas about regulation that need to be explored based upon our analysis of the relationship of Amtrak and the intercity bus industry. We would suggest, however, that the need for information about regulation should be defined narrowly enough so that the necessary studies can be completed in a timely manner. The Commission commented: "We believe it is most important that further efforts be made to understand not only the results of Amtrak/bus industry competition, but also the total competitive interactions among rail, bus, air, and auto travel, and their impacts on the total transportation system and economy." While we believe the report makes clear that it is important to view the intercity bus industry in a broad context, it may not be possible to gather in a timely manner all of the information which the Commission would like to obtain.

The industry expressed concern that our mention of recent congressional action authorizing a Federal Highway Administration program of support for intercity bus service might be misinterpreted to suggest that intercity bus companies were now receiving Federal operating subsidies. Funds under the new program have not yet been made available. Trailways suggested that a large portion of new funds might go to urban transportation systems in cities of less than 50,000 rather than to intercity bus companies, and pointed out that most of the other 114 Federal programs in 28 agencies that provide funds for transportation support special services (such as transportation for the elderly) that compete with intercity bus companies providing common carrier service. Trailways stressed the need for better transportation planning by the Federal Government.

Our response

The final version of our report provides more evidence on the relationship of Amtrak round-trip excursion fares to bus fares. We believe that the text makes it clear that a change in bus company revenues that results from a change in Amtrak policies can have a relatively great impact on bus company profits--whether this impact is as the result of increasing bus ridership or of allowing the bus companies to raise their fares.

On the precise question of how many additional passengers the intercity bus industry could carry while incurring very little additional expense, we believe that additional analysis would be appropriate before making generalizations. We believe that with specific service such as express bus service in the NEC where it can be shown that average loads have fallen in recent years, it is highly plausible that additional traffic could be carried to the point where average loads return to those that prevailed in the past. However, as we point out in appendix IV, there are no reliable independent analyses of how costs in the bus industry change as ridership changes. The ABA states it would be possible to increase ridership significantly with little increased expense "particularly if the increased volume is spread over a reasonable part of the year--not concentrated in a very short period of time." The qualifying phrase could be extremely important, but without more detailed analysis of the economics of meeting demand in peak periods, we believe that a certain amount of caution is in order in estimating marginal costs from statistics on average loads. Greyhound's statement that "intercity bus has the capacity to virtually double its ridership without any increase in service" appears to be exaggerated and makes no reference to how perceived quality of service might change if buses became more crowded.

and Amtrak believes it will at least continue to retain its share of a growing market for common carrier travel. Amtrak also pointed out that we were not definite about what bus companies would do if Amtrak raised its fares, and that a likely scenario is that the bus companies would raise their fares with the result that ridership on both bus and train would be less and ridership on automobile and airplane would be greater.

Our response

We recognize that there is no one correct way to summarize the market for rail service. It is true, as the study notes, that rail travel (measured in passenger miles) has increased since 1971 and that a majority of those traveling by Amtrak have not been diverted from the bus. It is also true that in part this increase in passengers has been made possible by increasing subsidies--the amount of the operating subsidy in 1977 was more than three times as much as it was in 1973. Our task in this study was to concentrate on that part of Amtrak's market which is in competition with buses. In this connection we believe it is appropriate to place both bus and trains in the context of overall U.S. transportation patterns in which the proportion of total intercity passenger miles carried by automobiles and airplanes has continued to increase through the 1970's.

Clearly, we cannot predict whether bus companies will leave fares unchanged (thereby increasing riders) or will increase fares if Amtrak fares were to increase. Such a judgment involves assessing consumer demand in particular markets, competitive conditions within the industry, and responses of Federal and state regulatory officials if rate increases were requested. But it is still possible to draw useful conclusions about the effect of an increase in Amtrak fares on the intercity bus industry. No matter how bus companies respond, bus company revenue and profits will increase. While one end result could be fewer passengers riding bus and train, another possibility would be an improved financial condition of the intercity bus industry.

INTERCITY BUS INDUSTRY

Industry comments

The industry comments did not question GAO's general assessment of Amtrak's effects on ridership, fares, and revenues in the intercity bus industry. They did, however, emphasize the importance of special Amtrak round-trip excursion fares in holding down bus fares in areas where

These considerations clearly imply that more explicit attention should be given by the Congress and others at the Federal level to the regulatory environment within which intercity bus companies now operate. As a minimum, efforts should be made to assure that Federal regulatory policies of the ICC applied to interstate aspects of intercity bus services are consistent with Federal policy toward Amtrak.

Relaxation of regulatory requirements should not just apply to existing companies serving routes. Bus service is inherently very competitive in that the start-up expenses are very modest, and it is easy to expand or contract service to meet market demand. Thus, fewer entry and exit provisions could allow the forces of competition within the bus industry to act to provide the most service to the public consistent with the size of the market.

When the implications of regulations on the economic relationship of Amtrak and the bus industry are examined carefully, we believe the the case is strengthened for examining the possible need for regulatory reform in the intercity bus industry.

made for Amtrak service--the NEC--is also the area where the adverse impact of Amtrak on the intercity bus industry appears to be most severe.

Evidence of Amtrak's effect on the intercity bus industry is thus only one part of the evidence that the Congress must weigh in assessing the overall net benefits and costs of Amtrak. Previous experience, however, indicates that having Federal financing for one mode of transportation can adversely affect the finances of private corporations in another mode. 1/

3. In addition to changes in Amtrak policy, alternatives available to the Congress include reforms in the way ICC regulates the bus industry, or subsidization, which is being done by some States. The Congress recently authorized several programs to aid the intercity bus industry; some have not been appropriated funds.

The high cost of rail passenger service compared to bus service, even on routes where Amtrak has a relatively high volume of service, underscores the need to be concerned with both efficiency and equity in the evaluation of the costs and benefits associated with possible changes in Federal Amtrak policy. This report has shown that the combined market served by buses and passenger trains is not growing. In the relatively tight Federal budgetary situation that now appears likely for the next several years, it is appropriate for the Congress to assess all of its policies concerned with maintaining a viable system of surface common carrier intercity passenger transportation--those concerned with Amtrak and those with intercity buses. A possible result of existing policies is the preservation of two financially struggling modes of transportation at rather high cost to the Federal Government because of the large subsidies to one of the modes--Amtrak.

Heretofore, Amtrak legislation has not dealt with priorities in the surface transportation area. Section 101 of the 1970 Rail Passenger Service Act states in part:

> "The Congress finds that modern, efficient, intercity railroad passenger service is a necessary part of a balanced transportation

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1/For example, Federal financing of highways and waterways contributed to the financial decline of many freight railroads.

of Class I bus companies could be as high as 11 percent. Less drastic changes in Amtrak policy, such as cutting back service outside of the NEC one-fourth, might add to bus ridership by as much as 2 percent.

--We cannot exactly determine the effect that an increase in bus ridership due to a reduction in Amtrak will have on net operating revenue. This is highly sensitive to the bus companies' response, regulatory actions, and changes in the economy. It is quite probable, though, that bus industry profits would increase, particularly in the NEC.

--Amtrak fare policy in the NEC has eliminated the fare differential favoring buses that existed before Amtrak was established in 1971. This definitely appears to have reduced bus ridership in some of the major routes served by the two modes.

--Since Amtrak's beginning, bus companies have at times had to create special Amtrak competitive fares, approved by the ICC, lower than the standard fares in order to keep bus fares under Amtrak fares. At the present time, bus fares in the NEC are still at Amtrak competitive levels.

--If Amtrak limits its future fare increases to increases in the CPI, this policy could further squeeze bus company net operating income if fares are held below Amtrak fares. This is because bus company expenses, like Amtrak expenses, have been increasing at a rate faster than the rate of increase in the CPI.

--If the fare differential were reestablished, the effect on bus company revenues would depend on how they responded to the increased fares. If the differential between rail and bus fares were restored, bus company net revenues would increase. These increased revenues could come from either (1) raising fares to collect more revenue per passenger or (2) retaining current lower fares to divert Amtrak passengers. The extent to which bus companies would opt for higher fares or increased riders is uncertain. It would depend on market conditions and regulatory actions.

Our work has shown that Amtrak has the potential for diverting passengers from the bus. Of the five companies visited, the two experiencing the greatest impact were Indian Trails and Adirondack Transit.

--Amtrak began service from Chicago to Flint, Michigan in 1974. Indian Trails experienced a 17 percent drop in boardings on the Chicago to Flint route in the first full year of Amtrak operations. Ridership has remained relatively stable since. Amtrak, however, experienced an increase from 5,134 boardings in July 1974 to 13,309 in July 1975. Boardings increased to 14,470 in July 1977. The increase in Amtrak ridership was almost four times the decrease in bus ridership, which suggests that Amtrak attracted riders from other sources. A questionnaire given Amtrak passengers by the Michigan Department of Transportation concluded that 23.8 percent of the Amtrak passengers along this route had the potential to be diverted from the bus.

--Amtrak's fare competition with Adirondack Transit has been very aggressive on the Albany to New York City route. (See app. III) Adirondack has lost substantial ridership while Amtrak has gained. However, the decrease in bus ridership has been much greater than the increase in Amtrak's ridership. Thus Amtrak competition can be no more than a partial explanation of Adirondack's loss in ridership.

The other companies did not demonstrate that Amtrak was having an effect on their operations. It would be speculative to conclude that a drop in passengers or passenger miles was due to Amtrak. The routes of Carolina Coach and Vermont Transit, which parallel Amtrak routes, show smaller percentage decreases or larger percentage increase in passenger miles than do the companies' total passenger miles. In the case of Pacific Trailways, passenger miles increased significantly on the route competing with Amtrak when Amtrak service began. For Carolina Coach, Vermont Transit, and Pacific Trailways, no clear evidence indicates diversion by Amtrak.

It should be noted that we did not evaluate the competition within the intercity bus industry itself. For example, the anti-trust suit Pacific Trailways filed against Greyhound resulted from competitive practices which allegedly harmed Pacific Trailways. Therefore, distinguishing Amtrak from Greyhound competition is difficult, if not impossible.

TABLE 4-6

Fares Between New York and Washington, December 1978

	One-way			Rountrip			
	Regular bus	Regular train	Amtrak competitive bus	Regular bus	Regular train	Amtrak competitive bus	Train excursion (note a)
Fare	$20.95	$21.00	$19.40	$39.85	$42.00	$34.00	$31.50
cents per mile	9.11	9.13	8.43	8.66	9.13	7.39	6.84

a/Good for 30 days, and not valid for major holidays and peak weekend travel periods.

TABLE 4-7

Fares Between New York and Boston, December 1978

	One-way			Roundtrip				
	Regular bus	Regular train	Amtrak competitive bus	Regular bus	Regular train	Amtrak competitive bus	Train excursion	
Fare	$20.40	$19.50	$18.90	$33.80	$39.00	$33.00	a/$30.00	b/$25.00
cents per mile	9.15	8.74	8.48	8.70	8.74	7.40	6.73	5.61

a/Good for 30 days, and not valid for major holidays and peak weekend travel periods.

b/Good for 17 days, and not valid for major holidays and peak weekend travel periods.

TABLE 4-5

Summary of One-way Bus and Amtrak Fares From New York to Washington April 1971 to May 1978 (note a)

Date of Fare change	One-way train fare	One-way train excursion	One-way bus fare	Amtrak competitive bus fare
Apr. 1971	$13.00	-	$11.20	-
May 1972	13.00	-	11.80	-
June 1972	13.00	$11.25	11.80	$11.00
Aug. 1973	13.00	11.25	12.20	11.00
Nov. 1973	13.00	cancelled	12.20	11.00
Jan. 1974	13.00	-	12.35	11.00
Feb. 1974	13.00	-	12.50	11.00
Apr. 1974	13.75	-	12.50	cancelled
June 1974	13.75	-	13.10	-
Aug. 1974	13.75	-	13.40	-
Nov. 1974	14.50	-	13.40	-
Dec. 1974	14.50	-	14.30	-
May 1975	14.50	-	15.75	-
June 1975	14.50	-	15.75	14.45
July 1975	15.00	-	15.75	14.95
Dec. 1975	16.00	-	15.75	14.75
Jan. 1976	16.00	-	15.75	cancelled
June 1976	17.00	-	15.75	-
July 1976	17.00	-	16.50	-
Nov. 1976	17.00	-	17.15	-
Dec. 1976	18.00	-	17.15	-
Mar. 1977	18.00	-	18.20	-
May 1977	18.00	-	19.05	17.95
June 1977	20.00	-	19.05	cancelled
Oct. 1977	20.50	-	19.05	-
Nov. 1977	20.50	-	19.95	-
Mar. 1978	20.50	-	20.95	20.45
Apr. 1978	21.00	-	-	-
May 1978	21.00	-	-	-

a/This table does not show brief fare increases which were immediately suspended or reduced by the ICC.

TABLE 4-4

Summary of One-way Bus and Amtrak Fares From New York to Boston, July 1971 to May 1978 (note a)

Date of fare change	One-way train fare	One-way train excursion	One-way bus fare	Amtrak competitive bus fare
July 1971	$12.75	$ 9.90	$10.45	-
Dec. 1971	12.75	9.90	10.45	$ 9.65
May 1972	12.75	9.90	11.00	9.65
Aug. 1973	12.75	9.90	11.35	9.65
Nov. 1973	12.75	11.00	11.35	10.75
Feb. 1974	12.75	11.00	12.00	10.75
Apr. 1974	13.50	12.00	12.00	11.95
June 1974	13.50	12.00	12.20	11.95
Aug. 1974	13.50	12.00	12.45	11.95
Nov. 1974	14.00	cancelled	12.45	11.95
Dec. 1974	14.00	-	13.25	11.95
May 1975	14.00	-	14.60	cancelled
June 1975	14.00	-	14.60	13.95
July 1975	14.50	-	14.60	14.45
Jan. 1976	14.50	-	14.60	cancelled
Feb. 1976	15.50	-	14.60	-
June 1976	16.50	-	14.60	-
July 1976	16.50	-	15.30	-
Nov. 1976	16.50	-	15.90	-
Dec. 1976	17.50	-	15.90	-
Mar. 1977	17.50	-	16.85	-
May 1977	17.50	-	17.65	-
June 1977	19.50	-	17.65	-
Nov. 1977	19.50	-	19.45	-
Mar. 1978	19.50	-	20.40	18.90
Apr. 1978	20.00	-	20.40	18.90
May 1978	19.50	-	20.40	18.90

a/This table does not show brief fare increases which were immediately suspended or reduced by the ICC.

that it would be tantamount to abolishing Amtrak, except perhaps in the NEC and other high-density corridors.

Impact of increase in ridership on bus company profits

The preceding analysis estimated Amtrak's impact on Class I bus companies in terms of revenue passenger miles. In estimating the financial effect of this on bus companies, we would need to know the average fare that would be paid by the additional riders and the added expenses that would be incurred in providing the additional service. The increase in net income that could result could be substantial. However, information is not available to estimate the net effect on operating revenue with any degree of precision. Bus company officials point out, however, that if the number of passengers per bus returned to the 1971 (pre-Amtrak) level, the increase in passengers could be handled with currently available buses. They believe increased revenues would result with minimal cost increases. This argument is particularly plausible in the NEC, where ridership per bus for express service has declined since 1971 by more than the national average.

FARES AND RIDERSHIP IN THE NORTHEAST CORRIDOR

In this section, we examine two different markets of the NEC:

--New York/Boston.

--New York/Washington.

This section examines whether Amtrak diverted passengers from buses and whether competition from Amtrak is forcing the bus companies to lose revenue by keeping fares down.

Nature of competition in the Northeast Corridor

When Amtrak began operating, it took over the existing Metroliner and conventional rail service in the NEC. Passengers choose between bus and train for reasons other than price alone, but price is the area of competition between the two modes that management can change with relative ease.

Trains have an advantage because they are more comfortable and with snack bars and more leg room. Since 1971,

Estimated increase in bus ridership in 1976 that would have resulted if Amtrak were eliminated

To estimate the increase in bus ridership that would have resulted if Amtrak service had not been available in 1976, we applied the percentages contained in table 4-1 to Amtrak's 1976 ridership. Table 4-2 shows that in 1976, buses would have received an additional 681.7 million to 1,363.3 million revenue passenger miles of service if Amtrak service had been unavailable. Of the total estimated increase, 24 percent is in the NEC.

TABLE 4-2

Estimated Revenue Passenger Miles on Amtrak that Would Have Been Diverted to Bus in 1976 if Amtrak Had Not Been Available

Types of service	High	Low
	(millions of revenue passenger miles)	
Metroliner	36.9	18.5
Conventional (NEC)	283.2	141.6
Subtotal (NEC)	320.1	160.1
All services outside of NEC	1,043.2	521.6
Total	1,363.3	681.7

In table 4-3, the increase in ridership from table 4-2 is shown as a percentage of actual bus ridership in 1976. We estimate that bus ridership in 1976 would have been 14.8 percent to 29.5 percent greater in the NEC and 4.6 to 9.1 percent greater outside of the NEC if Amtrak service had not been available in 1976. Overall, we estimate that Class I intercity buses would have experienced an additional regular-route passenger service of 5.5 to 10.9 percent if Amtrak had not been operating in 1976. We estimate that total ridership for all types of service provided by Class I, II, and III companies would have been 2.7 to 5.4 percent greater in 1976 without competition from Amtrak.

Finally, a brief discussion of various econometric and statistical studies is included.

EFFECTS ON THE INTERCITY BUS INDUSTRY OF CHANGES IN FEDERAL POLICY TOWARD AMTRAK

This section estimates the amount of train ridership (measured in revenue passenger miles) that would switch to buses if train service did not exist or if it were cut back. We did the calculation for 1976 because that is the latest year in which suitable data are available for the NEC. 1/

Estimates of the proportion of train passengers who would switch to bus if Amtrak service were eliminated

Survey data on the demographic characteristics of bus and train ridership (summarized in app. I) show that except for Amtrak's high-speed Metroliner service, the bus and train compete in many of the same markets. Competition is greatest for single-person, non-business trips by persons of low or moderate income who are significantly younger or older than the typical traveler. Metroliner passengers, many of whom are traveling for business reasons, are much less likely to switch to the bus if Amtrak were not available.

The best evidence of how many train passengers would take the bus if Amtrak service were not available comes from the survey data in appendix I. This information suffers from a problem common to all survey information--the persons surveyed are responding to a hypothetical question and are not making an actual decision. It therefore can be used only as a general indicator, not as a precise estimate. These surveys indicate that, if Amtrak services were cut back or eliminated, most Amtrak passengers would take automobiles, airplanes, or not travel at all. A significant minority, however, stated they would take the bus.

Our judgments about percentages of Amtrak passengers who would switch to the bus are shown in table 4-1 (see p. 25),

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1/Bus data by region only exist for 1971 and 1976. The ABA said that the calculation is cumbersome and could not be done in time for this report with 1977 data. The ICC does not disaggregate bus data by the appropriate regions.

Other statistical or econometric studies

Our review began with a search for other studies that dealt with the economic relationship of Amtrak and the intercity bus industry. We did not find many studies because this relationship has received little attention from Federal agencies and others concerned with transportation policy and research. We found studies that supported the qualitative conclusion that Amtrak does have an adverse economic effect on the intercity bus industry. However, we did not find a study that we were able to determine was a rigorous, independent assessment that could simply be applied with a high degree of confidence to measure Amtrak's effect on the intercity bus industry.

The results of existing studies and the conclusions we have drawn from them are discussed in appendixes to this report. Econometric studies are discussed in appendix IV. Surveys of passengers, which provide information on market shares and attitudes of travelers toward buses and trains, are discussed in appendix I. Although these existing studies do not provide the information we would liked to have had, they do provide an important source of evidence for our appraisal of Amtrak's effects on the intercity bus industry, which are developed in the next chapter.

Data limitations

The problem of identifying that part of the intercity bus industry which actually competes with Amtrak has been mentioned. Even in the NEC, where Amtrak and the bus industry are most competitive, there are problems in obtaining comparable data on service, passengers, and fares.

Bus ridership information is incomplete. Some companies provided information on both express and local service. Others provided only total ridership. Also, the extent to which Amtrak competes with local bus traffic is not clear.

Whenever possible, this report develops a comparison between express bus ridership and Amtrak ridership on the non-Metroliner trains. These passengers are most likely to be divertable between modes. In principle, Amtrak ridership between specific city pairs is easier to obtain because this information is maintained on a monthly basis on computer tape by the Federal Railroad Administration (FRA) and Amtrak. However, it is very time consuming to obtain printouts of past years and tabulations of ridership for several years over a route that connects many cities. Even if that information were available, it would not be strictly comparable to bus industry data nor would it be compatible between years even on the same route.

Comparable fare information is also difficult to obtain. Bus companies and Amtrak, at any one time, have a basic one-way and roundtrip fare in effect for each route. Bus companies offer 5 percent off on regular roundtrip ticket purchases. Amtrak also offers a number of special excursion fares for families or for travel at particular times of the week. Bus companies also have special fares. The usage of these special fares has increased since Amtrak was established.

Lack of detailed cost accounting systems

The lack of detailed revenue and cost accounting data for different types of intercity bus service makes it difficult to determine how changes in ridership affect costs.

Another issue on which data are lacking is "cross-subsidization." Profits gained in one area allow a bus company to "cross-subsidize" service that loses in another area while still allowing the company to make a profit on its overall operations. Cross-subsidization is one of the main justifications for the limited entry

CHAPTER 3

PROBLEMS IN MEASURING AMTRAK'S EFFECT ON THE INTERCITY BUS INDUSTRY

Public Law 95-421 requires GAO to assess how Amtrak's fare structure influences the financial condition of the intercity bus industry. As discussed in the previous chapter, however, Amtrak's fare structure is just one of the economic influences on the intercity bus industry. These influences cannot be isolated or measured with precision. This chapter explains these measurement problems.

There are two basic difficulties in defining the problem. First, it is necessary to define the alternative to which the present situation is being compared: Slightly higher Amtrak fares? Less aggressive competition by Amtrak on certain key routes (such as the NEC)? The elimination of Amtrak altogether? The next chapter examines the hypothetical "no Amtrak" alternative, which represents the upper bound of Amtrak's impact on the bus industry, as well as less drastic alternatives.

Second, we must determine how to measure the effect of these alternatives on the bus industry. "Revenue passenger miles" is the main measure of output of the bus industry used in this study. Revenue passenger miles is the best indicator of potential revenues because fares are based on the number of miles traveled. To measure the impact on the financial health of the bus industry, however, would require measures of return on investment and profits. Industry profits are the result of numerous complex factors, including pricing responses of the bus companies and the regulatory actions of the ICC, neither of which is easily predicted.

Data problems abound. Although tremendous volumes of data exist, they are not amenable to consistent interpretation due to crucial gaps in coverage and to various technical statistical problems. Our investigations did not reveal any previous study of Amtrak's impact on the bus industry that was able to solve these problems satisfactorily.

PROBLEMS IN DEFINING THE ECONOMIC IMPACT OF AMTRAK ON THE INTERCITY BUS INDUSTRY

The measure of the economic impact of Amtrak on the intercity bus industry that is easiest to estimate is

PRICE COMPETITION BETWEEN AMTRAK AND THE INTERCITY BUS INDUSTRY

Amtrak and the bus industry are conscious of each other's marketing strategies, and they compete by price. In chapter 4, we will describe fare competition in the NEC, but this competition also exists elsewhere in the country.

Examples of how Amtrak decisions take bus fares into account can be drawn from a February 1978 Amtrak document which recommended changes in the Amtrak fare structure. Information on prevailing bus and air fares was included in Amtrak's discussion of each marketing area. In discussing a proposed rate increase for the New York/Albany/Chicago Lakeshore route, Amtrak said:

> "Since May, 1977 ridership has been stagnant. Revenue passenger miles and revenue have been increasing slightly. Poor on-time performance has adversely affected this route. The proposed rail fares will still be below current bus fares."

In recommending that no increase be adopted on the Chicago to St. Louis route, Amtrak said:

> "Present fares in major markets exceed bus with few discounts, while bus frequency is higher and speed is comparable * * * 2-1/2 percent rate increase may reduce primary market passengers by 8 percent, revenue by 6 percent."

The bus companies also compete by price with Amtrak. The ICC has a standing order which permits bus companies to reduce fares to match Amtrak. This process of adjusting bus fares when Amtrak service characteristics are competitive can be illustrated by quoting the National Bus Traffic Association in a discussion of Amtrak fare changes in 1976:

> "Increases in the fares of Amtrak which became effective February 1, 1976, made it possible for the bus carrier to eliminate many reduced fares between points where the standard fares were lower than the new fares of Amtrak. If the proposed 6 percent increase in interstate bus fares becomes effective April 1, 1976, as filed, many of the new bus fares will be higher than the presently effective Amtrak fares and it will be necessary to publish reduced fares competitive with Amtrak."

TABLE 2-7

Comparison of 1971 to 1976
Industry Performance, Class I
Carriers, Regular Route Service

	1971	1976	Percent change
Passenger miles (millions)	14,104	12,560	-11.0
Passengers (millions)	129.0	112.1	-13.1
Bus miles (millions)	726.7	672.4	- 7.5
Average load (note a)	19.4	18.7	- 3.6
Passenger revenues (millions)	$540.1	$646.2	+19.7
Operating expenses (millions) (note b)	$664.4	$952.1	+43.3
Average revenue per bus mile	74.3¢	96.1¢	+29.3
Average expense per bus mile (note b)	77.6¢	113.6¢	+46.4
Average revenue per passenger mile	3.83¢	5.14¢	+34.2

a/Load is defined as revenue passenger miles per bus mile. The average bus seats over 40 passengers.

b/Because the bus industry's accounting system does not break operating expenses into regular-route or other types of service, these figures represent totals.

AMTRAK'S FARE POLICY

Under the Rail Passenger Service Act, Amtrak has the flexibility to set its own fares. In setting the fare structure for the various services offered on individual routes, Amtrak can take account of its own expenses, competition from other modes, and the nature of the market being served. Overall, Amtrak fares must be high enough to enable Amtrak to operate within the subsidy provided by the Congress. In the years Amtrak has operated, the percentage of its operating expenses met by revenues has been falling, as shown in table 2-8.

TABLE 2-6

Comparison of Passenger Miles on Amtrak
and Class I Buses in the Northeast Corridor
and Rest of the United States in 1971, 1972, and 1976

Bus (note a)	1971	1972	1976	Percent change 1971-76	Percent change 1972-76
		(millions)			
NEC	1,461	(b)	1,084	-25.8	-
Rest of United States	12,643	(b)	11,476	- 9.2	-
Total bus	14,104	13,576	12,560	-11.0	-7.4
Amtrak					
Metroliner	(c)	307.2	307.1	-	0.0
Conventional NEC	(c)	560.9	850.3	-	51.6
Total NEC	(c)	868.1	1,157.4	-	33.3
Rest of United States	(c)	2,169.9	3,132.6	-	44.4
Total Amtrak	(c)	3,038.0	4,290.0	-	41.2

a/Regular-route passengers only.

b/Data unavailable in time for inclusion in report.

c/Data unavailable because Amtrak began operations in mid-1971.

Regular-route service

Bus companies provide charter service and package express service in addition to regular-route intercity passenger service. These areas are an increasingly important source of bus company revenues. In 1960 they provided 15 percent of total bus company revenues. This percentage grew to 25 percent in 1970, and almost 32 percent in 1976. Although Amtrak competes to a limited extent with charter buses by providing special rates for groups, such as transferring military personnel from one base to another, most of Amtrak's service competes with regular-route bus service. The analyses in this study, therefore, concentrate on regular-route bus service.

Per passenger mile expense and revenue

As we described above, compared to Amtrak, the bus industry provides many more passenger miles of service in relationship to expenses. A comparison of operating expenses per passenger mile and revenues per passenger mile on the two modes is shown below.

TABLE 2-4

Amtrak and Class I Bus Operating Expenses and Operating Revenues per Passenger Mile, 1976

	Operating expenses per passenger mile	Operating revenues per passenger mile (note a)
	(cents)	
Bus (Class I carriers)	5.64	5.16
Amtrak	15.72	5.54

a/Excludes operating subsidies and bus package express revenues.

CHANGES IN RIDERSHIP ON BUSES AND AMTRAK SINCE 1972

Change in national totals

Amtrak has grown since 1972--its first full year of operation. In 1972 Amtrak carried 16.6 million passengers and by 1976 it carried 18.6 million passengers, an increase of 12.0 percent. During the same time, the number of bus

TABLE 2-2

Comparison of Sizes of Carriers
to Amtrak (1976) Percentages

Type of Carrier	Revenue passenger miles in 1976 (millions)	Percent of bus industry passenger miles of service (percent)	Revenue passenger miles as percent of Amtrak's total passenger miles (note a) (percent)	Total bus company expenses as percent of total Amtrak operating expenses (note b) (percent)
Greyhound Lines, Inc.	9,200	36.7	214.5	77.0
Trailways, Inc. and 14 other, associated Class I carriers	4,766	19.0	111.1	39.1
Subtotal	13,966	55.6	325.6	116.1
Other Class I (66 carriers) (note c)	3,334	13.3	77.7	16.0
Total Class I	17,300	68.9	403.3	132.1
All other carriers (919 companies)	7,800	31.1	181.8	42.9
Total all carriers	25,100	100.0	585.1	175.0

a/Amtrak's total passenger miles for calendar year 1976 was 4,290 million.

b/Amtrak's operating expenses exclude cost of capital but do reflect Federal operating subsidies. Note that bus company and Amtrak fiscal years do not coincide.

c/In 1976 Class I carrier was defined by the ICC as a carrier with annual revenues of at least $1 million. This was changed to $3 million on January 1, 1977.

buses in the past 12 months. In 1977 the intercity bus industry carried 332 million passengers more than 25.7 billion miles. The industry's trade association, the American Bus Association, also points out that buses were the only form of public transportation for more than 14,000 communities. For many persons, the bus is the only convenient form of public transportation.

These measures of the importance of bus transportation do not change the fact that its role in the U.S. transportation system has diminished in recent years. The following paragraphs discuss briefly a few of the reasons for this decline.

Increasing income

As stated earlier, between 1950 and 1976, economic growth resulted in more travel, both personal and business. Total intercity travel increased by 175 percent, but train and bus travel fell by 76 percent. In general, increasing income produces added total travel, while concurrently reducing the amount of travel by bus and train.

Increasing auto ownership

Auto ownership increased dramatically from 40.3 million registrations in 1950 to 106.7 million in 1975, an increase of 165 percent. The convenience of the automobile has helped to reduce rail and bus ridership.

Increasing suburbanization

During the post World War II era, suburbanization has continued, with decreased population densities in the urban areas. This has decreased the accessibility to most travelers of bus and train terminals.

Relative price and travel times

Since 1950, the prices or costs of the various intercity modes have increased at different rates. The Consumer Price Index (CPI) increased by 135 percent between 1950 and 1976. During the same period, bus fares increased 171 percent, and train fares increased 153 percent. Both bus and intercity rail fares increased more quickly than the CPI, making them relatively more expensive in 1976 than they were in 1950. In contrast, domestic air coach prices increased by only 86 percent. The cost of owning and operating an automobile increased by 171 percent between the same years, but marginal costs--the cost of using the car you already own for one

CHAPTER 2

BACKGROUND INFORMATION ON THE INTERCITY BUS INDUSTRY AND AMTRAK

During the period since 1971, when Amtrak began operating, ridership on regular-route intercity buses declined while Amtrak ridership increased. During this same period, the intercity bus industry's financial condition deteriorated. It is unquestionably true that Amtrak has diverted some passengers from buses, thereby contributing to the financial difficulties of the bus industry. The question we are investigating is how important an influence Amtrak has been in the past and will continue to be in the future.

As a first step in the analysis, this chapter presents the following background information on both the intercity bus industry and Amtrak:

--National transportation trends.

--Comparisons of the intercity bus industry and Amtrak.

--Changes in ridership on buses and Amtrak since 1972.

--Financial condition of the intercity bus industry since 1971.

--Amtrak's fare policy.

--The intercity bus industry's fare policy.

--Price competition between Amtrak and the intercity bus industry.

NATIONAL TRANSPORTATION TRENDS

In recent years, the relative importance of both intercity rail passenger service and intercity bus service has declined. The bus industry has not benefited from the growth in intercity travel associated with economic growth over the last several decades. Between 1950 and 1976, U.S. population increased 41 percent, the real gross national product (GNP) grew by 139 percent, and real disposable income grew by 73 percent. Intercity travel by all modes increased 175 percent, reflecting increasing amounts of discretionary travel by individuals and increasing business trips. Bus

financial distress. Bus company officials are now requesting financial aid from the Federal Government.

SCOPE OF REVIEW

We interviewed bus company officials and the American Bus Association (ABA) about Amtrak and other specific problems confronting the intercity bus industry. We also asked the Association to identify companies that it believed had been most affected by Amtrak.

We visited five small bus companies and the two major companies to talk with company officials about the issues involved in this study and to obtain data.

Our analytic approach was to determine the extent to which:

--Trains and buses have riders with similar characteristics.

--Amtrak fares, service frequency, and travel times are designed to draw riders from buses.

--The size of Amtrak's market affects the bus industry.

--Other factors affect the bus companies.

In addition, we reviewed academic literature, economic models, and industry and Government publications dealing with the issues. We have discussed these issues with experts in the field, including Amtrak officials. We have also obtained the viewpoints of officials from the ICC, the Department of Transportation, and several State-level regulatory bodies. Their comments are incorporated where appropriate and are discussed in chapter 6.

ORGANIZATION OF THIS REPORT

Chapter 2 presents background information on national transportation trends, the intercity bus industry, and Amtrak. Chapter 3 addresses problems in measuring Amtrak's effect on the intercity bus industry. Information on surveys of passenger characteristics and attitudes contained in appendix I and on econometric studies in appendix IV supplement the discussion of chapter 4. The information available establishes that Amtrak's existence and fare policies adversely affect the intercity bus industry. But, in trying to measure this impact on the basis of information now available, it is necessary to settle for "order of magnitude" estimates.

establishment of Amtrak. Even without competition from Amtrak, the bus industry would have declined because of (1) competition from other modes (automobiles and airlines) and (2) changing socioeconomic conditions, such as higher per capita incomes and increased population dispersion. Even the abolition of Amtrak would not permanently arrest this decline.

GAO has examined four types of evidence concerning the economic impact of Amtrak on the intercity bus industry: ridership surveys, data on fares and ridership in the Northeast Corridor, the experiences of five smaller bus companies throughout the United States, and evidence from econometric and statistical studies.

GAO believes that its analysis supports the following conclusions:

--Bus ridership would definitely be greater if Amtrak service were cut back or terminated. If all Amtrak service were terminated, the increase in revenue passenger miles of regular-route service of Class I bus companies could be as high as 11 percent. Less drastic changes in Amtrak policy, such as cutting back service outside of the Corridor by one-fourth, might add to bus ridership by as much as 2 percent.

--Competition between Amtrak and intercity buses is particularly keen in the Corridor, which comprises more than a quarter of Amtrak's market. The elimination of Amtrak could result in a 15- to 30-percent increase in revenue passenger miles for the bus industry in the Corridor.

--Amtrak's fare reductions in the Corridor have diverted riders from intercity buses and have induced bus companies to reduce fares. Lower profits have been the result.

--In order to reestablish the fare differential that existed prior to Amtrak, Amtrak's current one-way fares