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SELF-SUSTAINING PUBLIC TRANSPORTATION SERVICES: Lessons from the C&NW Experience

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I. Introduction

Between 1970 and 1977, transit deficits in the United States grew by over 600 percent, while ridership increased by only about 4 percent. The rapidly mounting deficits are of great concern because governmental outlays for transit cannot continue to grow indefinitely, especially in view of the increasing pressure for fiscal restraint and the many other pressing demands for public monies. If transit service is to continue to expand, it is likely that means will have to be found to narrow the gap between revenues and expenses.

But not all U.S. transit systems have lost money in recent years. There have been a few which have been self-supporting, at least to the extent of passenger revenues (and other incidental revenue, such as from advertising) covering operating costs. To determine the degree to which the experience of such systems might be used to help reduce deficits elsewhere, three notable self-supporting systems (in the sense of revenues at least covering operating costs) were examined. These systems were: the Chicago and North Western Railway suburban railroad service in the Chicago area; the Port Authority Transit Corp. Lindenwold Hi-Speed Line connecting Philadelphia with southern New Jersey suburbs; and the express bus service operated by New York Bus Service, Inc. connecting the Bronx and Manhattan. These three all represent conventional, scheduled, line-haul transit services similar to those in other cities. This similarity, combined with the availability of data from recent special studies, led to the choice of these three for detailed analysis. For reasons of data availability, the analyses were done primarily for 1975.

This brief paper will discuss the results of the analysis of one system, the C&NW rail service. The conclusions for this example are generally similar to those resulting from the analysis of the other two systems; differences will be pointed out at appropriate points in the paper.

Financial self-sufficiency can be achieved in a number of ways. These can be seen from examination of the equation relating surplus or profit (S) to revenue (R) and costs (C), with revenue equal to the product of number of passengers (P) and average fare (F):

$$S = R - C = P \times F - C \qquad (1)$$

A profit or surplus could be achieved by having low costs, C. Alternatively, the revenue might be large, as a result of higher than usual fares, F, *or* larger than usual traffic, P, or a combination of the two. The traffic might be large as a result of unusually high quality of service. This suggests three areas for inquiry: (1) analysis of the price-level of service package these systems offer travelers in comparison to other transit systems as well as to alternatives in the specific market served, (2) a comparison of costs with those of other systems, and (3) an analysis of the area served to determine whether or not it has an unusual demand for transit. For instance, demand for certain types of transit may be higher than typical, due to high incomes. In the next section we shall describe the C&NW service, and then turn in succeeding sections to these questions.

II. Description of the Service

The Chicago and North Western Railway has three suburban routes radiating from the Chicago CBD. All of these are part of the original intercity routes of the C&NW, and suburban train service was introduced late in the nineteenth century. In the late 1950s a new management took over the C&NW, and it undertook the radical step of attempting to make the suburban services profitable by modernizing the equipment and tailoring the service to the postwar market. It continued to operate profitably until 1975. In 1974 a Regional Transit Authority (RTA) was created in Chicago, and it intervened in a fare increase proceeding by the railroad, offering to give the railroad a lump sum subsidy in lieu of the fare increase. Since then the fares have been held constant, with the RTA making up the operating deficit. In 1977 the rolling stock was purchased by the RTA, and the C&NW provides service under contract to the RTA.

All three commuter routes radiate from a single terminal located in the northwest corner of the CBD. Line lengths are 83 km (51.6 miles), 57 km (35.4 miles) and 101 km (62.8 miles) for the North Line, West Line and Northwest Line, respectively, though the latter has a spur to Lake Geneva, Wisconsin, for a maximum length of 114 km. The change of management in the 1950s led to three important sets of operating changes in the way the service was run.

The first was that the old equipment was replaced by air-conditioned, double-deck commuter cars ("gallery cars"), and the steam locomotives were replaced by diesel-electrics. Many of the cars were equipped with cabs from which the locomotive could be remote-controlled. This allowed a "push-pull" operation, with the engine remaining at one end of the train, and it substantially reduced costs by eliminating yard-switching.

The second innovation was the introduction of flash-type commuter tickets, which were merely shown ("flashed") to the conductor instead of being collected. This enabled train crews to be reduced, and resulted in further cost savings. Finally, the management focussed on suburb-to-CBD markets, and withdrew from very short-haul intra-Chicago markets that were better served by local transit. Some city stations were eliminated, especially those that were adjacent to rapid transit stops. At the same time parking facilities were considerably expanded.

These changes took place under the scope of regulation by the Illinois Commerce Commission. Like most regulatory bodies, the Commission was reluctant to grant fare increases: the C&NW overcame the reluctance by linking the fare increases to proposed equipment purchases or service improvements. Popular opinion among commuters favored high-quality service, even at increased fares; thus, there was virtually no opposition to fare-increase proposals during the period of modernization.

Table 1 shows the recent profit-and-loss results. The commuter rail service operated at a profit from 1965 to 1974, the period of private management and before the Regional Transportation Authority began its subsidy program.

TABLE 1 Financial Performance of the C&NW Commuter Rail Service

Year	Total Cost	Total Revenue	Profit (Loss)
1965	$14.3m	$15.7m	$1.4m
1970	19.2	21.0	1.8
1973	23.7	24.2	.5
1974	26.4	27.7	1.3
1975	28.6	28.5	(.1)

Source: C&NW Annual Suburban Service Reports.

III. Level of Service and Price

The question of the level of service and pricing of the C&NW service is addressed here, in two parts. First we compare its price and service level to those of other US commuter railroads in order to ascertain whether the self- sustainability could be attributed to an unusual price-service package. Second, it is important to be market-specific in order to assess the potential viability of the services. If, even with levels of service different from an industry norm, the self-sustaining services cannot compete with alternatives already present in the local market, one would not expect them to attract the necessary patronage. Thus, we shall also compare the price-level of service package of the self-sustaining system to those of competitors (e.g., auto) in the markets within which the self-sustaining service operates.

For purposes of comparison, we shall discuss the concept of price-service quality structured into four primary categories of urban transport service characteristics. These categories, together with the operational meanings of the categories are given below:

Category	Characteristics
Service availability	Origin-destination areas Time period of service Traveler and trip types served
Information	Maps and timetables Real-time information sources
Price	Fares, parking fees
Level of service	Travel time (access, wait, on-vehicle, transfers, etc.) Predictability of arriving as planned Schedule delay (e.g., shift activities to mesh with departure times) Comfort Personal security Activity options while traveling Interruptions of journey (transfers)

It is clear that the characteristics will differ in the importance consumers attach to them; but most of those characteristics revealed as important in previous literature are included.

The C&NW system takes care to make information readily available. Telephone and mail information service is provided; timetables may be picked up at stations, where, particularly during the peak, station agents may also work, though these agents are not present at all stations. Once on board, information is readily available from conductors or trainmen. Service is provided from approximately 6:00 am to 1:00 am. Parking facilities are readily available: for the C&NW lines the average number of spaces per station is 292. By contrast, for other Chicago-area rail services, the Burlington Northern provides 229, the Milwaukee Road 100, Illinois Central Gulf 128 and the Rock Island 188. In Philadelphia, the Penn Central commuter lines provided 74 spaces per station, and the Reading lines 50.

The C&NW does not run at headways significantly shorter than other commuter rail services, nor is its average speed higher, as revealed by the data presented in Table 2. Like most commuter railroads, there is a policy of attempting to provide a seat for all passengers --even in the peak. Interestingly, fares on the C&NW are lower -- on a per passenger-mile basis -- than those on other US commuter rail systems studied. Figure 1 presents average revenue vs. average trip lengths for these systems. (The slope of the line connecting the point and the origin is the average fare for that system.)

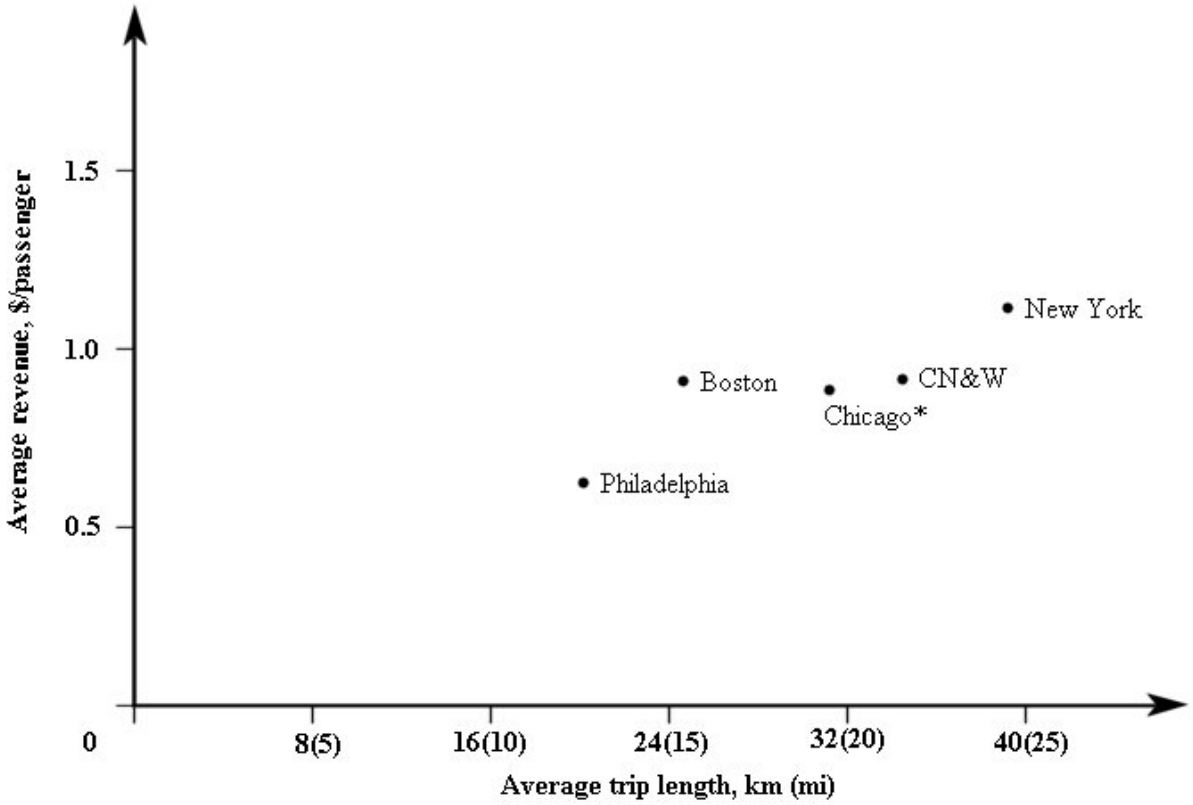
TABLE 2 Comparison of Selected Service Characteristics of the C&NW with other U.S. Commuter Rail Systems

System	Average Weekday Operating Speed, km/h	Average Weekday Headway, min	
		Peak	All Day
C&NW	51.2	18.2	54.1
Boston	49.6	15	42
Chicago*	49.6	26	43
New York	52.8	14.1	33.4
Philadelphia	52.8	22	48
San Francisco	59.4	7.1	48.7

*Averages for Chicago include C&NW.
Source: U.S. Department of Transportation (1975), except C&NW from timetables and reports.

The other aspect of service quality that must be discussed is the within-market comparison. How does the service offered compare, not to average US transit service, but rather

to the alternatives facing travelers in their own markets? We compare the money and time costs for representative trip distances for the three systems in question.



* Average for Chicago includes C&NW

Source: U.S. Department of Transportation (1975) and C&NW reports.

FIGURE 1 Average revenue per passenger and average trip length on US commuter lines.

Trips by the C&NW are compared with trips made by car, assuming two persons per car. Typical results are given in Table 3. The fares on the C&NW are shown under two alternatives:

TABLE 3 Market Comparisons of C&NW Commuter Service vs. Auto

Origin Point	Approximate Trip Distance (km)	C&NW Fare 10-Ride	C&NW Fare Unlimited Monthly	Auto Cost Scpt.	Auto Cost Std.	Average Travel Time CN&W	Average Travel Time Auto
Oak Park	20	$ .90	$ .60	$ .90	$1.00	37	27
Des Plains	30	1.25	.75	1.25	1.50	56	44
Warrenville	50	1.60	1.10	1.60	2.00	83	63

Sources: Auto costs are based on Reed (1975); in-auto travel times on data from the Chicago Area Transportation Study. C&NW on-train times and costs are from timetables. To those in-vehicle times are added walking access and egress times. Thus these data are for trips within walking distance of the C&NW suburban and CBD stations.

that tickets are bought under either a 10/25 ride plan, or an unlimited monthly ride plan. As shown in the table, the lowest C&NW fares are consistently less than even subcompact auto costs. (of course, more extensive carpooling would alter this conclusion.) On the other hand, the average travel times by train are generally higher than the corresponding auto travel time.

What one finds in the C&NW service is a combination of quality of service and price that makes a very attractive transport package from the viewpoint of travelers in the region. That this is the case is borne out by a survey conducted in the area served by the Chicago and North Western Railway's northwest line in 1973. This survey was of a random sample of about 1,000 households. It was conducted by an association of mayors of suburban communities, in order to assess the adequacy of transportation as well as other services in that area. In this survey 76.7% of the respondents indicated that they felt that the C&NW commuter service was very good or excellent, and 93.6% rated it average or better (0. Morlok (1974), p. 45) even though most of the households really had very little occasion to use that service (since most trips for work as well as other purposes are, of course, not CBD-oriented). What did emerge from this survey was that while the service as a whole was considered quite good, there still is a need for more adequate parking at C&NW commuter stations, a matter which has received the attention of the railroad's management.

A final feature of these services which bears emphasis is that in a period of cost inflation, prices must necessarily increase to keep pace with costs. One might think that such fare increases would diminish ridership. This is not necessarily true, as the C&NW experience indicates. Table 4 presents the fare increases initiated by the Chicago and North Western Railroad in the period just before the service was taken over by a public authority and no longer operated for profit. As

TABLE 4 Chicago and North Western Fare Increases, Traffic and the Consumer Price Index 1969-1974

Year	Fare Increase, %	CPI Increase, %	Passengers 1,000,000	Passengers % change	Passenger-miles 1,000,000	Passenger-miles % change
1969			25.729		528.6	
	5	5.9		-2.7		-2.2
1970			25.046		517.9	
	6	4.3		-1.1		+0.6
1971			24.763		521.1	
	7	3.3		-0.6		-0.5
1972			24.606		518.3	
	5¼	6.2		+0.8		+0.6
1973			24.812		521.4	
	7	11.0		+2.6		+2.5
1974			25.452		534.4	

Source: Fares and traffic from Chicago and North Western Transportation Co. reports. Consumer Price Index from Bureau of Labor Statistics (1977), p. 239.

can be seen, these fare increases generally were equal to or slightly greater than the increase in the Consumer Price Index. Nevertheless, traffic continued to grow over this period. Also, it is important to recognize that every one of these annual fare increases had to be approved by the Illinois Commerce Commission, at whose hearings the public as well as local governments and other interested parties could object to the increases. If their objections were very strong, the fare increase probably would not be granted, or perhaps only a reduced increase would be approved. In the case of the C&NW there was rarely any significant objection to the increases, partly because it was felt the railroad was providing a very good service appropriate to the market, and also because the railroad was very careful to explain to the commuters as well as the populace in general that only through these fare increases would it be able to maintain the high quality of service to which people had become accustomed.

IV. Costs

There are two ways in which a transit system can tend towards self- sustainability. One is to increase revenues; the other is to decrease costs. In this section we ask whether the costs of the C&NW are lower than those of the other comparable, but not self-sustaining, systems (which we call "comparison systems"). However, before proceeding to the discussion an important conceptual question must be resolved. When we speak of one transit operation as being less costly than another, we generally mean that its average cost (total cost per unit of output) is less than that of the other. But in this case it would be inappropriate merely to compare average costs. For as we have seen, the self-sustaining services provide a level of service that is in some important respects different from that usually provided. Thus what is required is a way of standardizing the level of service implicit in the description of the transit system.

Our standardization is in two steps. First we compute the physical resources that a comparison system would need to produce an equivalent level- of-service to a base (self-sustaining) system. Having *done* this, we then use a cost model to calculate the costs that a comparison system would experience in providing the capacity level and level of service of the base system.

For commuter rail operations no entirely adequate cost model was found, in contrast to the situation with respect to bus and rail rapid transit, where models like those presented by Gilman (1969) and Roess et al. (1975) appear to be widely used and accepted. In this case a model similar in spirit to the Gilman and Roess models for transit, and the Cherwony and McCollom (1976) model for rail commuter service, was developed. The reader is referred to Morlok, Viton et al. (1979) for the details.

Using this model, the costs of providing the C&NW's capacity and level of service by four other commuter rail operations was estimated. The results appear in Table 5. It is evident that all of the other carriers are higher cost carriers (in the sense used here) than the C&NW. The variation is from 22% higher cost in the case of the Milwaukee Road to 83% higher in the case of the Penn Central --a very substantial difference. Thus in the sense used here the C&NW is certainly an extremely efficient railroad. Low costs clearly are one of the reasons why the C&NW has been profitable in providing its commuter service. That its cost is so much lower suggests that it may have developed managerial and operating techniques far superior to those of

TABLE 5 Commuter Rail Cost Comparison

System	Cost*	Index
C&NW	$26.356m	1.00
Burlington Northern	39.134	1.46
Milwaukee Road	32,825	1.22
Penn Central†	49.209	1.83
Reading Company†	34.764	1.29

Notes:
* Estimated total operating cost of providing C&NW 1975 level of service in dollars/yr.
† Commuter operations (now part of Conrail), Philadelphia.

other commuter rail lines; and these techniques might repay study by other deficit commuter rail systems.

V. Characteristics of Service Areas

In this section we ask whether any commonly observed demographic variables serve as indicators of the successful locales of the services. The question is important from the point of view of any public authority or private firm considering such service. For if the areas served can be demarcated by easily gathered data, much of the uncertainty whether the proposed service will be a success is dissipated --and without the need of expensive area surveys.

Since we would wish the data to be easily generalizable, we examine demographic data drawn from the 1970 Census of Population. This is the latest data available on the micro (census tract) level.

The relevant comparisons appear in Table 6. With distances between stations on the commuter rail network averaging 4.0 km (2.5 mi), it is clear that the system is intended to be reached by mechanized transport as well as walking. We thus take the service area for the C&NW to be those census tracts within 8 km (5 mi) of a station. As may be seen from the table, the service area so defined has a significantly smaller proportion of residents with incomes less than $3,000 a year than does the SMSA as a whole (3.7% vs. 7.9%). Equally, it has a larger proportion with incomes exceeding $15,000 -- 41% as opposed to 26.8% in the SMSA.

On other demographic characteristics, differences are minimal. The service area of the C&NW commuter rail has a slightly smaller proportion between the ages of 25 and 44; the proportion of females is virtually identical. A somewhat smaller proportion of work trips from the service area are destined to the CBD; and the lower transit percentage in the service area is related both to availability of transit options and the fact that residents of the service area are much less likely to work in the city of Chicago than residents of the SMSA in the service area. Thus, the only significant difference between the C&NW service area and the Chicago region as a whole revealed by these data is that the income distribution in the service area was skewed for the high end of the spectrum. Other differences are undoubtedly correlated with this, such as

TABLE 6 1970 Service Area Characteristics

	Income[a]				Destination[b]	Mode Choice
	% under $3,000	% over $15,000	Age % 25-44	Sex % Female	% of work trips CBD bound	% of work trips using transit
C&NW Service Area	3.7	41.1	36.8	51.2	6.8 (36.7)	16.3
SMSA Excluding C&NW Service Area	7.9	26.8	38.0	51.8	9.5 (64.4)	38.5

Notes:
a. In current 1978 dollars $3,000 is approximately equivalent to $4,380 -- $15,000 to $21,900, using as an inflating factor growth in personal income.
b. The numbers in parentheses are proportions of work trips destined to the City of Chicago.
Source: Calculations using Census data.

higher auto ownership and a lower density of development. It is noteworthy that none of these features is usually thought of as favorable to public transportation.

VI. The Service Concept

From this analysis of the C&NW suburban railroad service, as well as of the two other self-supporting services not discussed here, there emerges an overall concept of a self-supporting transit service. This concept is built around four features of the service that are within the direct control of transit management. These are a high quality of service, a relatively high fare, a targeting of the service toward users who are willing to pay the high fare in return for the high level of service provided, and finally, providing information that is readily available to both regular transit users as well as prospective new riders. Each of these features bears some elaboration.

Perhaps the key feature is that of offering a very high quality of service. From an examination of the few existing high-quality, self-supporting transit services, and studies of peoples' preferences for transit service, the most important quality features seem to be: provision of a seat for each traveler even during the peak period, using only air-conditioned vehicles, providing comfortable areas in which to wait at stops, insuring that travelers feel safe from possible crime while on the system and during travel. to and from it and finally, providing service such that travelers are reasonably certain that they will reach their destination when planned. The last service characteristic, reliability from the standpoint of the traveler, can be maintained by operating vehicles reasonably close to schedule, and then making sure that travelers have ready access to timetables and also to telephone sources of information regarding those schedules.

A second feature of this service concept is making it easy to use the service. Perhaps the most important aspect of this is providing information to riders and potential riders regarding the location of routes and stops, the schedules of vehicle trips, and other information. This can easily be done through posting timetables at all stops and on board all vehicles, by providing a telephone information service which is not so overloaded that prospective passengers often find it busy, and by mailing maps and timetables to persons on the basis of telephone requests. Another related aspect of this is providing information on the service to potential riders, who may not even be aware that the service exists. This is particularly important in middle- and upper-income areas because of the frequency of new persons moving into an area. This can easily be done by advertisements in local newspapers, and dropping information at the residences of newcomers to the area. Also, it must be easy for passengers to get to the system. In most cases where walking is not relied upon, this would involve the automobile, implying that adequate parking facilities must be provided.

The third feature is that of a relatively high price commensurate with the high quality of service. This implies that the price should reflect the distance traveled, either through having a graduated fare or charging a high flat fare if variable-length trips are not catered to. Although the C&NW service had fares similar or even slightly lower than other commuter railroads, its fares are considerably higher than those of most other transit systems. Moreover, typical fares on the other two self-supporting systems examined were approximately two to three times those of more common public transportation services (that is, on diagrams similar to Figure 1 the other self-sustaining systems had fares lying well above the cluster of points corresponding to other city or regional systems).

Obviously, high-quality, high-price public transportation service represents a particular type of service which is not desired by all transit riders. Therefore, the service must be provided only in those markets where the riders can be expected to want the high quality and be willing to pay the high price. It would be expected that this type of service would be desired primarily by middle- to upper-income families, and this was confirmed by examining the C&NW'S market area.

The net result of these features --providing a high-quality service with a correspondingly high price, and targeting it to a particular segment of the travel market --is that the service can be self-supporting. By "self-supporting" we mean that at a minimum it would pay its operating costs fully out of fare-box and incidental (e.g., advertising) revenues. Ideally, the service would not only pay operating costs but also the costs associated with ownership of the vehicles. The coverage of vehicle ownership costs is important because then as traffic increases the system itself will generate the revenue necessary to purchase the additional vehicles required. In this way capacity can be expanded and the high quality of service will continue, without the delay associated with seeking additional governmental grants for new vehicles. It might be pointed out that in some cases such systems have not only been able to support their operating costs and vehicle ownership costs, but also cover all costs associated with the service.

VII. Applicability of the Concept

In this final section we discuss two aspects of self-sustaining service not covered thus far. First is the question of whether such service could be implemented elsewhere. ' In answering this question, our research focused primarily on a service provided by buses, and not railroads. This was because a service using buses operating primarily on existing roads could be implemented more rapidly and with less expenditure than a rail service. The second aspect is what benefits might be expected from implementing self-supporting services?

Our results to this point allow us to characterize self-sustaining transit service as high-quality/high-fare service, with service being provided in areas of above-average income. We are not able to suggest just when such a service could be successfully implemented in other areas. In order to do this we need to know how demand varies with the level of service both of the self-sustaining mode and of the alternative modes available to consumers; and also how the providers of services decide what to offer in the transit market.

In a recent paper Viton (1978) presents an approach to this question. The demand structures of consumers are taken from empirical demand models of the San Francisco Bay Area, and a motivation for the potential self-sustaining operators is provided by the concept of profit-maximization. The potential provider of self-sustaining service, knowing the way in which demand varies with service characteristics, and knowing in addition the service characteristics offered by competing modes sets his own level of service (and fare) to maximize his profits.

The structure of the models allows such parameters as market size, income distribution and trip characteristics to be varied; thus, the attainability of self-sufficiency may be examined under a wide set of potential scenarios. We shall here only summarize the conclusions most relevant to our discussion.

Consider a market in which the only modes available are the private car and the self-sustaining bus service. Focussing only on peak travel, two aspects of any profitable service are of interest. Do the conclusions of the model suggest that self-sustainability requires the high level-of-service/high fare observed in our studies of the three actual profitable services? The answer is yes. In all cases where self-sustaining service was possible, the profit-maximizing operator provided a high service level and a corresponding high fare. Thus, we may conclude that the model adequately replicates the decision-structures and requisites of the self-sustaining service operators. The second aspect of interest is the conditions under which such services could be implemented. Clearly this will depend on the income-distributional characteristics of the population served; but a cautious general statement is possible. Consider a market of peak-hour residential-area-to-CBD travel. Then if the density of CBD-bound travelers exceeds approximately 200 persons per square kilometer per hour, self-sustaining service is feasible. If the income distribution is favorable, the required density may be as low as 160/sq. km/hr.

These numerical results suggest that the potential for self-sustaining service may be greater than hitherto appreciated. What might be the benefits of such a service?

The evaluation of transportation service is very often done in terms of the impacts on particular groups. Perhaps the most common grouping is: users of the service, the organization providing the service, government, and the region or society as a whole (i.e., "non-users"). This categorization is useful for our purposes.

Users clearly benefit from the service because with proper targeting of the service to its market, a service more desirable than conventional transit service (lower quality/lower fare) will be provided. Instead of being offered a single transit option of the usual sort, on a "take it or leave it" basis, travelers would now have the option of paying more for a high quality service. There is certainly ample evidence that many travelers are willing to pay substantially more for 'higher quality transit service, and the provision of this type of service benefits travelers oriented toward such service.

The transit system itself benefits in three ways. First, by virtue of providing the high quality service with its attendant high fares, total revenue is likely to increase. This increase may be very substantial in situations where a large amount of high-quality service is provided. Furthermore, the increase in revenue will be greater than the increase in operating cost as a result of the design for self-sufficiency, and as a result the total deficit from transit service is likely to decrease somewhat. Of perhaps more significance than the decrease in total deficit, however, is the fact that now government subsidy funds can be concentrated on other transit services which may cater to low income travelers or to services which are inherently costly to provide, such as specialized services for the infirm and handicapped. These are the services most in need of direct government aid, and hence focussing governmental support on these rather than spreading it to parts of the transit system that do not require such support will achieve the maximum benefits to financially or otherwise disadvantaged persons. A second benefit is that by virtue of the services being self-sufficient, the transit management is freer to modify the services to suit changing ridership or other conditions, and as pointed out previously, can presumably expand the services as necessary without having to wait for government grants to purchase new vehicles or additional subsidy funding to make up increases in operating deficits resulting from expansion of the service. Finally, to the extent that the offering of this new type of service increases transit riding in the entire area, it would be to the benefit of the transit organization.

The primary benefits from the standpoint of the government relate to the fact that this service is self-supporting and hence does not require a continuing government subsidy covering operating costs. This means that funds that otherwise would be spent for transit subsidies would be released for use elsewhere in the transit system, or perhaps for other government functions in the area. A related benefit from the standpoint of the use of government funds is that subsidies or government expenditures for transit out of general tax monies would be primarily targeted to low-income riders of conventional transit services, because the high-quality services targeted to middle- and upper-income people would be self-supporting. As a result of this, government funds would no longer be used to subsidize the travel of wealthier segments of our society, presumably achieving greater efficiency in government through better targeting of government expenditures to low-income and socially disadvantaged groups. In a period of great concern for efficiency in government, and at a time when there have been substantial charges of government expenditures designed to help primarily the rich, these impacts are of considerable importance.

Finally, from the standpoint of the region, or society as a whole, there would be some benefits. These basically derive from the impacts discussed above, but represent second-order effects somewhat beyond them. For example, to the extent that additional people are attracted from their automobiles to public transit --and new (or induced) auto trips do not take their place-- there would be a reduction in congestion, and probably in energy consumption and air pollution, in the metropolitan area. Because self-supporting services can be initiated very quickly, it may be possible to provide high-quality public transit service to areas much sooner than they could be provided by, for example, waiting for a new rapid transit line to be completed. As a result the area may retain middle- and upper-income residents who otherwise might have moved to other areas where there is better transportation. Also, by transforming or reducing the public transit deficit through making some services self-supporting, those funds that are released will be available for other uses, either providing other transit services or perhaps being used for other important governmental functions within the area such as public schools, parks and recreation, publicly-aided housing, and welfare.

These considerations suggest that there are very important lessons to be learned from the examples of the self-sustaining services. Whether or not a given area should seek to implement such services remains to be decided on a case-by-case basis. However, if it is found to be feasible to do so, the benefits may be significant.

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