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"Measuring the Decline in Transit Productivity in the U.S."

by

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MEASURING THE DECLINE IN TRANSIT PRODUCTIVITY IN THE U.S.

Charles Lave* (6 May 1989)

INTRODUCTION

In a conference devoted to the potential benefits of increased private involvement in the transit industry, it is useful to see what lessons may be drawn from the experience of a country that pursued an exactly opposite course. Starting in the mid-1960's, United States policy encouraged the public takeover and subsidy of what had been a privately owned, self-supporting transit industry. The combination of public ownership and subsidy was able to halt the long-term decline in ridership, but it also led to the growth of an enormous financial deficit that has become increasingly difficult to bear. (Anderson (1983), Bly and Oldfield (1985), Pickrell (1985), and Pucher et al. (1983), have written about the connection between the deficit and the government's subsidy policies.)

Underlying the financial deficit is a surprisingly large decline in the industry's productivity (output per dollar.) Indeed, if transit productivity had merely remained constant since 1964, the year the federal subsidy program began, total operating expenses would be more than forty percent lower. To put that figure in perspective, this is enough cost-reduction to erase most of the current operating deficit -- without even raising fares.

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It is unusual to find such a long-term productivity decline in any industry. In general, productivity increases over time, and a given quantity of inputs produces more and more output -- which is why per capita income rises. Thus the productivity change in the transit industry is notable for both its direction (a decline), and its magnitude. Furthermore, there is nothing inherent about the public transportation industry that produces such a decline: Cox (1988) estimates that productivity rose 8.3 percent in the private bus industry over the 1970-1985 period.

This paper contributes to the literature on productivity and deficits in two ways. First, it explicates the situation at the typical transit firm. Prior studies are based on data for the total industry: such totals are not an accurate description of the typical firm because the totals are dominated by the data from a few giant firms. Although the decision to begin subsidizing the industry was an aggregate decision, the reactions to that subsidy and to the new environment it created, were very much the product of particular circumstances at the individual firms. So, I trace the performance of 57 individual transit properties to give a picture of what was happening. Second, this paper extends the time-line of the analysis back to 1950, so we can understand conditions before federal intervention began.

THEORY: HOW SHOULD WE MEASURE TRANSIT PRODUCTIVITY?

The basic question is: what indicator should we use to measure the output that a transit system supplies? Most of the prior literature has measured output as passenger-miles, bus-miles, and even seat-miles. I will use bus-hours as the output measure, and I will measure productivity as: operating cost per bus-hour.

<u>Why use bus-hours as the measure of output?</u> I want a measure that evaluates transit properties fairly. It would be unfair to use bus-miles, for example, since that quantity is largely determined by the amount of traffic congestion in the service area. Thus, increases in congestion over time would automatically lower the apparent productivity of a transit property even though it is not a factor within their control. Likewise passenger-miles is an unfair measure in an era when transit managers have been told to run buses into low density suburbs in an attempt to lure people out of cars, and to provide mobility in areas which are inherently unsuited to achieving reasonable bus load factors. We should not judge the productivity of a transit system by using measures that its managerial decisions cannot affect.

One might argue against using vehicle hours as the output measure: "Transit agencies may not be supplying the right kind of vehicle hours; they may not be responding properly to the market." I do not agree. First, I think that transit managers are supplying the kind of service that government intervention has demanded. Second, even if the statement were true, it is a much simpler matter for management to reallocate the existing bus-hours of output then it is to find a way to reallocate inputs so as to produce more vehicle hours of service.

<u>Why use Total Operating Costs as the measure of Input?</u> I use operating cost as the input measure because it is a weighted average of the cost of everything and everybody that goes into producing transit service. The alternatives are something like Driver + Maintenance Cost, or Labor Hours. If we use only the Driver + Maintenance portion of the

budget, we ignore the enormous growth in white collar overhead at most agencies. Some of that white collar expansion is typical, Parkinson's Law, growth in administrative staff; and some of the growth is in response to the increased demands of the subsidizing-agencies for more planning, more reports, and more data. In either case, the true worth of the new white collar staff is measured by the increase in output they produce; if the new staff produce efficiencies that led to more vehicle hours of service, then they have earned their way and the ratio of Total Operating Cost/Bus-Hour will justify their addition to the staff.

THE DATA

The sample of transit properties analyzed includes all properties with total operating revenues of $1 million and up, in 1964 dollars, listed in the 1964 tables published by the American Transit Association (now the American Public Transit Association). Table 1 lists all of these properties, in order of size. Notice that almost all were privately owned at that time. We compiled detailed financial spread sheet data for each of these properties; eighteen items for each. They used a number of different accounting systems: in the early years, either the ATA or the ICC system of accounts; and in later years two more systems were added, the UMTA Section 15 accounts, and the UMTA Project Fare accounts. A great deal of care was taken to assure common definitions, but we do not claim that we have achieved absolute consistency. However, whatever the idiosyncrasies of any given transit property, we expect a substantial degree of consistency within a property over time; and most of our results are based on such year-to-year changes.

Table 2 summarizes a small portion of this data. It contains some of the descriptive averages for the total sample. All transit properties

TABLE 1: LIST OF TRANSIT PROPERTIES IN THE SAMPLE, BY SIZE

		1964 Rvnu			1964 Rvnu
*Chicago	IL	81,403	Albany	NY	3,213
*New York City (T.A.)	NY	74,726	Philadelphia (Subur)	PA	3,163
Newark	NJ	54,530	Jacksonville	FL	3,017
Philadelphia	PA	33,428	Nashville	TN	2,993
*Detroit	MI	26,992	Omaha & Council Blf	NE	2,964
Cleveland	OH	23,755	Chicago (Suburban)	IL	2,923
Baltimore	MD	21,662	Toledo	OH	2,473
Minneapolis St. Paul	MN	13,420	Worcester	MA	2,444
*Oakland	CA	12,769	Springfield	MA	2,248
Buffalo	NY	12,479	Akron	OH	1,995
Pittsburgh	PA	11,611	Fort Worth	TX	1,990
Atlanta	GA	10,732	Cinc, Newport & Cov.	KY	1,926
Cincinnati	OH	8,789	Reading	PA	1,922
*San Francisco (MUNI)	CA	8,673	Charlotte	NC	1,830
Kansas City	MO	7,705	Evanston	IL	1,792
Manhattan & Queens	NY	6,640	Gary	IN	1,719
*Boston	MA	6,441	Wilmington	DE	1,636
Dallas	TX	6,378	Des Plaines	IL	1,501
New Orleans	LA	6,305	Chattanooga	TN	1,401
*Memphis	TN	5,697	*Sacramento	CA	1,239
Portland	OR	5,074	Knoxville	TN	1,342
*San Diego	CA	5,053	*Tacoma	WA	1,334
San Antonio	TX	4,732	Harrisburg	PA	1,328
Louisville	KY	4,786	Allentown	PA	1,316
Indianapolis	IN	4,437	Youngstown	OH	1,286
Honolulu	HA	4,502	Charleston	WV	1,204
Columbus	OH	4,118	Grand Rapids	MI	1,163
Providence	RI	3,979	Duluth-Superior	MN	1,135
Bridgeport	CT	3,426	Boston, Worc. & NY	NY	1,044
Syracuse	NY	3,218	Roanoke	VA	1,020
Albany	NY	3,213	*Savannah	GA	1,002

* = Publicly owned in 1964; all others were private companies.

Table contains data on all transit properties reporting data to the American Transit Association in 1964 that had more than $1 million in Passenger Revenue that year.

receive equal weight in computing the averages, thus the data may be used to infer the characteristics of a typical property. This is in contrast to the industry totals published by the American Public Transit Association in its Yearly Fact Book. The APTA figures are a good description of the U.S. transit industry as a whole, but are not appropriate for inferring the situation at a typical property because a few giant transit properties determine most of the U.S. average. New York, by itself, accounted for 41% of all passenger miles in 1982, and adding in the next five largest properties brings the total to nearly 70%. Thus, industry-totals are rather like that famous elephant and mouse stew. The taste is determined by the elephant (those few large firms) and conveys little flavor of the hundreds of mice (the typical firms).

ANALYSIS

The first thing to note in Table 2, looking at the top row (revenue divided by operating expenses), is that the properties are actually earning enough to cover their operating expenses during the period 1950-1964. Tables 3/4/5 split the total sample into subsamples, of large, medium, and small size, respectively. Looking at the top row in these three tables, we confirm the same result. (What is the variation within these averages? Of the 57 individual properties: 44 were above 1.0, and 6 were above 0.95. Only 3 of the 57 agencies were below 0.91; and the only really low ratio was 0.70 for San Francisco Muni -- which, significantly has been publicly owned and operated since 1912.)

Given that the transit industry was covering its operating expenses, why did the U.S. government decide it was necessary to get into the transit subsidy business? Row 1 is the cash-flow accounts: the agencies

TABLE 2: PERFORMANCE MEASURES -- THE TOTAL SAMPLE

	1950	1955	1960	1964	1966	1968	1970	1972	1975	1980	1985
Revenue/Operating Expense	1.09	1.08	1.06	1.05	1.02	0.99	0.92	0.81	0.52	0.38	0.34
Revenue/(OpExp-Deprec.)	1.00	0.99	0.99	0.98	0.95	0.92	0.87	0.77	0.50	0.38	0.34
Revenue/Revenue Passengers	$0.56	$0.70	$0.79	$0.87	$0.87	$0.89	$0.88	$1.05	$0.63	-	-
OpExp(w/o Depreciation)/Bus Hours	$18.84	$20.39	$22.15	$22.95	$23.82	$24.33	$24.54	$27.07	$29.76	$34.39	$40.18
Bus Hours/Employee	1,240	1,211	1,188	1,228	1,228	1,255	1,269	1,216	1,054	1,079	1,028
Bus Miles/Bus Hours	10.78	10.82	10.89	11.28	11.44	11.35	11.48	11.63	12.35	13.18	12.64
Peak Bus/Base Bus	2.05	2.19	2.16	2.26	2.22	2.21	2.23	2.17	2.23	2.03	1.93

NUMBER OF OBSERVATIONS

	1950	1955	1960	1964	1966	1968	1970	1972	1975	1980	1985
Revenue/Operating Expense	36	41	48	57	52	46	38	41	42	42	35
Revenue/(OpExp-Deprec.)	36	41	48	57	52	46	38	41	42	42	35
Revenue/Revenue Passengers	40	44	53	59	54	43	34	29	40	0	0
OpExp(w/o Depreciation)/Bus Hours	32	32	40	47	45	39	36	40	41	45	50
Bus Hours/Employee	25	25	36	45	41	36	33	37	37	45	51
Bus Miles/Bus Hours	37	36	45	50	46	40	36	40	41	44	51
Peak Bus/Base Bus	39	45	48	46	43	34	33	39	42	50	52

(All figures in constant 1985 dollars)

TABLE 3: PERFORMANCE MEASURES -- ALL TRANSIT PROPERTIES WITH TOTAL OPERATING COST OF MORE THAN $9M (in 1964 $)

	1950	1955	1960	1964	1966	1968	1970	1972	1975	1980	1985
Revenue/Operating Expense	0.99	1.06	1.06	1.05	1.04	1.07	1.03	0.88	0.58	0.43	0.38
Revenue/(OpExp-Deprec.)	0.92	0.98	1.01	0.98	0.98	1.00	0.98	0.86	0.57	0.43	0.38
Revenue/Revenue Passengers	$1.26	$1.05	$1.09	$1.09	$1.06	$1.11	$1.04	$1.16	$0.73	-	-
OpExp(w/o Depreciation)/Bus Hours	$17.88	$18.99	$19.56	$21.40	$22.44	$26.51	$28.05	$27.24	$32.62	$44.41	$47.38
Bus Hours/Employee	1,040	1,100	1,220	1,205	1,216	1,202	1,158	1,121	874	983	929
Bus Miles/Bus Hours	9.05	9.89	10.27	10.68	10.74	10.69	10.49	10.25	11.27	13.14	12.75
Peak Bus/Base Bus	2.27	2.28	2.13	2.40	2.29	2.24	2.21	2.19	2.12	2.02	1.90

NUMBER OF OBSERVATIONS

	1950	1955	1960	1964	1966	1968	1970	1972	1975	1980	1985
Revenue/Operating Expense	4	7	6	9	8	10	10	10	10	5	4
Revenue/(OpExp-Deprec.)	4	7	6	9	8	10	10	10	10	5	4
Revenue/Revenue Passengers	5	9	10	10	10	8	8	7	9	0	0
OpExp(w/o Depreciation)/Bus Hours	4	8	7	9	9	8	8	9	9	9	9
Bus Hours/Employee	2	5	4	8	8	7	6	7	8	9	10
Bus Miles/Bus Hours	5	9	9	9	9	8	8	9	9	9	10
Peak Bus/Base Bus	6	10	11	10	11	10	10	11	11	12	12

(All figures in constant 1985 dollars)

TABLE 4: PERFORMANCE MEASURES -- ALL TRANSIT PROPERTIES WITH TOTAL OPERATING COST OF $3M-$9M (in 1964 $)

	1950	1955	1960	1964	1966	1968	1970	1972	1975	1980	1985
Revenue/Operating Expense	1.09	1.06	1.07	1.05	1.01	0.97	0.93	0.83	0.55	0.37	0.34
Revenue/(OpExp-Deprec.)	1.02	0.98	1.00	0.98	0.94	0.89	0.86	0.77	0.52	0.37	0.34
Revenue/Revenue Passengers	$0.43	$0.60	$0.69	$0.78	$0.76	$0.74	$0.85	$0.88	$0.63	-	-
OpExp(w/o Depreciation)/Bus Hours	$20.34	$22.39	$23.83	$25.09	$27.11	$26.39	$25.58	$29.65	$29.01	$35.91	$43.96
Bus Hours/Employee	1,264	1,174	1,185	1,216	1,156	1,232	1,200	1,179	1,131	1,041	990
Bus Miles/Bus Hours	11.21	11.16	11.04	11.23	11.70	11.25	11.66	12.37	12.52	13.00	12.56
Peak Bus/Base Bus	1.99	2.15	2.27	2.24	2.27	2.22	2.32	2.26	2.35	2.02	2.06

NUMBER OF OBSERVATIONS

	1950	1955	1960	1964	1966	1968	1970	1972	1975	1980	1985
Revenue/Operating Expense	10	13	17	18	17	13	10	13	13	14	13
Revenue/(OpExp-Deprec.)	10	13	17	18	17	13	10	13	13	14	13
Revenue/Revenue Passengers	13	15	19	20	18	13	9	9	14	0	0
OpExp(w/o Depreciation)/Bus Hours	10	12	17	18	17	13	10	13	14	15	16
Bus Hours/Employee	8	9	15	16	13	10	9	12	12	15	16
Bus Miles/Bus Hours	14	15	20	21	18	14	10	13	14	14	16
Peak Bus/Base Bus	12	15	18	19	16	12	10	13	13	15	15

(All figures in constant 1985 dollars)

TABLE 5: PERFORMANCE MEASURES -- ALL TRANSIT PROPERTIES WITH TOTAL OPERATING COST OF LESS THAN $3M (in 1964 $)

	1950	1955	1960	1964	1966	1968	1970	1972	1975	1980	1985
Revenue/Operating Expense	1.11	1.09	1.06	1.05	1.01	0.97	0.85	0.76	0.47	0.38	0.34
Revenue/(OpExp-Deprec.)	1.01	1.00	0.98	0.98	0.95	0.91	0.81	0.73	0.44	0.38	0.34
Revenue/Revenue Passengers	$0.48	$0.62	$0.73	$0.85	$0.87	$0.89	$0.82	$1.10	$0.57	-	-
OpExp(w/o Depreciation)/Bus Hours	$18.22	$19.33	$21.51	$21.72	$21.53	$21.87	$22.39	$25.12	$28.93	$29.02	$35.16
Bus Hours/Employee	1,254	1,292	1,184	1,247	1,280	1,286	1,340	1,277	1,084	1,148	1,092
Bus Miles/Bus Hours	10.92	11.10	11.04	11.59	11.53	11.72	11.81	11.78	12.76	13.32	12.66
Peak Bus/Base Bus	2.01	2.17	2.07	2.22	2.13	2.16	2.18	2.09	2.22	2.04	1.87

NUMBER OF OBSERVATIONS

	1950	1955	1960	1964	1966	1968	1970	1972	1975	1980	1985
Revenue/Operating Expense	22	21	25	30	27	23	18	18	19	23	18
Revenue/(OpExp-Deprec.)	22	21	25	30	27	23	18	18	19	23	18
Revenue/Revenue Passengers	22	20	24	29	26	22	17	13	17	0	0
OpExp(w/o Depreciation)/Bus Hours	18	12	16	20	19	18	18	18	18	21	25
Bus Hours/Employee	15	11	17	21	20	19	18	18	17	21	25
Bus Miles/Bus Hours	18	12	16	20	19	18	18	18	18	21	25
Peak Bus/Base Bus	21	20	19	17	16	12	13	15	18	23	25

(All figures in constant 1985 dollars)

were taking in more money then they were paying out. But Row 1 is not a good measure of long-run viability because it does not include depreciation expenses. (In the short-run, depreciation has no special consequences; it is just an accounting item.)

Thus, Row 2 adds depreciation to operating expense and then divides by revenue. Row 2 is an indicator of the long-run viability of a transit property: can I cover immediate cash flow and have enough left over to be able to replace my equipment when it eventually wears out? The answer for a typical property in 1964 was, NO. The typical property was surviving by gradually running down its capital stock. It was also slowly reducing total service, cutting out the routes with low patronage, in order to remain viable. Thus the UMTA (Urban Mass Transportation Administration) program began as a kind of one-shot injection of new capital equipment. Give the transit properties some new equipment and all would be well. As we know, it didn't turn out that way. (Altshuler (1979, pp. 31-42), describes the early history.)

The initial UMTA subsidy program, in 1964, was confined to capital subsidies; transit companies were to earn their own operating costs. But 1975 saw a radical change in the UMTA program: from now on, the federal government would subsidize a portion of operating costs as well. The third row in Table 2, Revenue per Revenue-Passenger, clearly shows the consequence of this decision. Passenger fares had been rising steadily up through 1972 as transit managers struggled to cover their rising expenses. In fact, fares were rising faster than the rate of inflation. But in 1975 all attempts at fare-discipline were put aside, and passenger revenue plummeted. This change may be read in two quite different ways. First, one may see it as the result of removing the major remaining constraint on transit management: the obligation to earn operating costs was gone. Second, one may view it as a major change in the goals assigned to transit managers. The old goal was straightforward: provide a self-supporting service for those who wished to use it. The new goals, assigned by the government, were complex and nebulous: use transit service as a tool to solve urban problems, save the central city, provide cheap mobility for the poor, transport the handicapped, etc. Implementing these goals seemed to require expansion of service into low density areas that could not generate much patronage, and reduction of fares to make them affordable to anyone. The fall in revenue was a direct consequence.

But the financial crises in contemporary transit systems should not be viewed as simply a revenue problem. There is much more involved than the decline in earnings. The other half of the problem is an enormous increase in the cost of supplying the service -- caused by the substantial decline in productivity. The fourth row in Table 2 shows the Operating Expense per Bus-Hour. Over time, it rises from $22.95 in 1964 to $40.18 in 1985. (All costs are in constant 1985 dollars.) That is, the real cost of putting an hour of bus service onto the street has nearly doubled over the period since the federal government became involved in the transit industry.

<u>The Pattern of Productivity Changes</u>. To see if the post-1964 decline in productivity is atypical, we can compare it to the pre-1964 period. Table 6 divides our total time line into three parts: the pre-UMTA era, the era of capital-subsidy only, and the era of capital-plus-operating subsidies. The top row calculates the yearly rate of decline in productivity for the typical transit property. In the pre-UMTA era, productivity declined at the rate of 1.4% per year; in the era of capital

TABLE 6: THE DECLINE IN TRANSIT PRODUCTIVITY AT A TYPICAL FIRM*

	1950-1964 The Pre-UMTA Era		1964-1972 The Era of UMTA Capital Subsidies		1975-1985 The Era of UMTA Cap. & Operating Subsidies
All Transit Properties	1.4% per year		2.1% per year		3.1% per year
The Increase Across Eras		50%		48%	
Properties More Than $9M (1964$)	1.3% per year		3.1% per year		3.8% per year
The Increase Across Eras		138%		23%	
Properties $3-8.9M (1964$)	1.5% per year		2.1% per year		4.3% per year
The Increase Across Eras		40%		105%	
Properties Less Than $3M (1964$)	1.3% per year		1.8% per year		2.0% per year
The Increase Across Eras		38%		11%	

*This table may be read as either:
the decline in "bus hours/real dollar",
or the increase in "real dollars/bus hour".

subsidies, productivity declined at 2.1% per year; and in the era of operating cost subsidies, productivity declined at 3.1% a year. That is, the decline in productivity accelerated by 50% when capital subsidies began, and accelerated by another 48% when operating subsidies were added in as well. These are substantial and important changes.

Another useful productivity measure is shown in row 5 of Table 2, bus hours (in revenue service) divided by the total number of employees. There is a substantial decline: from 1228 bus hours per employee in 1964 to 1028 bus hours in 1985. The employee number used in the denominator is for total employees, drivers, maintenance, and administration. Thus the decline could be produced by two factors: a reduction in the number of bus hours per driver, and/or an increase in the proportion of non-driving employees. It appears that both factors are involved. Information to divide employees into functional categories is not available in the sample data, but there is fragmentary evidence from UMTA showing a decline in the number of bus hours per driver. And there is some evidence showing an increase in the proportion of non-drivers, especially in administration, which will be discussed below.

<u>Productivity Differences by Size of Transit Property</u>. Does the size of the transit property make a difference? Looking at the 1985 figures for cost per bus hour in Tables 3/4/5, we see that productivity rises as we move from large properties to medium sized properties to small ones: $47.38 per bus hour, $43.96, and $35.16, respectively. One might argue that the increasing costs are merely a reflection of the higher opportunity cost of labor in the big cities where the large transit properties are located. To see if this is the whole story, it is worth looking at the productivity trends in the three size classes: the cost

level in big cities will be higher, but the opportunity cost theory does not predict a difference in productivity trends by city size.

Table 7 calculates the comparative trends. It shows the ratio of 1985 cost/bus hour to the 1964 cost/bus hour for each of the three size groups. We see that productivity has fallen 62% in the small transit properties, and by double that rate in the large properties. That is, size is correlated with rate of decline.

The large transit properties in this sample are mostly in older cities that were built before the auto age. These cities have poor street systems, and hence comparatively high modal-shares for transit. A transit strike in such cities is genuinely paralyzing. Transit strikes in the smaller cities, with low transit modal share, have much less effect on congestion. Thus, it seems likely there will be far more pressure to settle strikes, regardless of the terms, in one group of cities than in the other, and these managements will be less able to resist productivity declines. The data in Table 7 are consistent with the hypothesis, and it will be tested further at a later phase of the project.

The Rise of Administrative Overhead. As discussed above, bus hours per employee has declined significantly over time. Is part of this effect due to a disproportionate increase in the number of administrators per driver?

What can be inferred from the sample data? The detailed 1950-1975 accounts contain a category called "General and Administrative" expenses, but I am not confident that the definitions have actually remained constant over time -- the figures exhibit a suspicious amount of year to year variation. However with the beginning of the UMTA Section 15 accounting data, the definitions become much more reliable. Table 8 shows

TABLE 7: DECLINE IN PRODUCTIVITY BY PROPERTY SIZE

	Total Decline in Productivity From 1964 to 1985
Small Properties: Operating Expenses Less than $3M (1964$)	62% drop
Medium Size Props.: Operating Expenses $3M to $8.99M (1964$)	75% drop
Large Properties: Operating Expenses More than $9M (1964$)	121% drop
Average for All Properties	75% drop

the salary and fringe benefit expenses, by functional categories, for all transit agencies over the period 1980-1985. The top of the table gives the salary and fringe information in dollar terms and the bottom reports it by functional categories, as a percentage of total salary and fringe expenses. Thus in 1980, Administrative salaries and fringes amounted to 10.6% of all salaries and fringes. This category grows to 19.5% in 1985, nearly doubling in size in just five years.

Unfortunately, these data are for the total U.S. transit system, and hence are subject to the "Elephant and Mouse" stew problem discussed earlier: I cannot say that the rise is typical of all transit properties, it may only be occurring at the very large ones. Further work is being done to disaggregate this data, and at the moment I can only say that the results are suggestive rather than definitive.

Disposing of a Few Old Myths. There are two other explanations for the decline in productivity which have been repeated so often in the productivity literature that they have assumed mythic status: 1) Increased traffic congestion in cities has reduced average bus speeds; thus, the cost of supplying a bus-mile of service has increased over time. 2) Increasing concentration of demand during the daily peak has caused properties to increase the ratio of peak-hour buses to day-base buses over time. Since costs rise rapidly as the peak/base ratio goes up (the labor and capital hired to cover the peak are idle, but still paid, during much of the day), the cost of supplying services has increased over time.

I have repeated these traditional explanations in my own papers. Their logic is compelling. Alas, neither is supported by the data. We can see in Table 2 that average bus speed has actually increased from 11.22 MPH in 1964 to 12.64 MPH in 1985. The increase in speed is even

TABLE 8: THE INCREASING PROPORTION

OF ADMINISTRATIVE EXPENSES

	Drivers	Vehicle Mainten.	Non-Veh. Mainten.	Adminis.	Totals
1980					
Salaries	$1,933	$608	$273	$326	$3,141
Fringes	$786	252	111	144	1,295
1983					
Salaries	$2,111	813	393	603	3,921
Fringes	$1,016	418	226	315	1,977
1985					
Salaries	$2,885	1,166	662	1,088	5,802
Fringes	$1,378	574	363	613	2,929
TOTAL	$4,264	1,740	1,025	1,701	8,732

Salaries and Fringes of Category Divided by Total Salaries and Fringes for All Categories					
1980	61.3%	19.4%	8.7%	10.6%	100.0%
1983	53.0	20.9	10.5	15.6	100.0
1985	48.8	19.9	11.7	19.5	100.0

greater in the subsample of large cities — from 10.68 MPH to 12.75 MPH, Table 3 — where one would have expected the greatest congestion effects. (These speed increases are almost certainly a reflection of the expansion of transit routes into the suburbs, and the initiation of express bus routes.)

Table 2 also shows the change in the peak/base ratio over time. For the typical system, the ratio declined from 2.26 to 1.93 over the UMTA period, and the decline is evident in each of the three subsamples as well. It is entirely possible that passenger demand has shown more peaking over time, but transit supply is not reflecting that change.

CONCLUDING PERSPECTIVE: THIS ISN'T HOW IT WAS SUPPOSED TO TURN OUT

It is useful to put the transit problem into perspective. In particular, we should notice that there has been a complete shift in the very nature of the problem over the past two decades. In the early 1960's we worried about finding ways to increase the demand for transit services; there was little mention of financial problems because the industry was essentially self-supporting — revenue from passengers covered the operating costs. Today, most transit revenue comes from governments instead of passengers, and the result is a crisis over how the government will raise the money to continue subsidizing the system.

We began by giving tiny amounts of aid to a transit industry that was actually self-supporting; we now find ourselves giving enormous amounts of aid to an industry in perpetual financial crisis. The connection between these facts seems obvious: First, the subsidy money encouraged transit agencies to expand service into unsuitable areas. Second, the subsidy money encouraged government meddling in transit operation, asking transit to undertake a variety of activities unrelated to its traditional goals. Third, the subsidy money sent the wrong signals to management and labor. Management interpreted the message to mean: the only thing that matters is expansion of demand and provision of social services. Labor interpreted the message to mean: management now has a Sugar Daddy who can pay for improvements in working conditions and salaries.

Given such signals, the decline in productivity and the growth in deficits, was inevitable.

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