BASIC ISSUES IN CHICAGO METROPOLITAN TRANSPORTATION

A RESEARCH REPORT
Prepared by

THE TRANSPORTATION CENTER
at
NORTHWESTERN UNIVERSITY

June, 1958

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PREFACE

This study was made by the Transportation Center at Northwestern University for the Chicago Central Area Committee and the Chicago Association of Commerce and Industry. Its purpose is to identify and analyze the basic issues in Chicago metropolitan transportation, thus contributing to the development of sound public policies.

We have been ever mindful, in the preparation of the study, of our responsibility to be as helpful as we could to all public agencies which have the official obligation of solving these problems. We have not hesitated, however, to voice disagreement with present thinking, either public or private, when we believed it in error.

The study was written by Edwin T. Haefele, Assistant Director of the Center and Project Leader of the study. Appendices I and II were prepared by Probyn Aitken, Research Associate in the Center. Consultative advice and counsel was given by Messrs. Yale Brozen, the Center's senior economic consultant; Stephen Sobotka, Assistant Director of Research in the Center; Robert Funk, Assistant Director, Municipal Finance Officers Association; Jordan Jay Hillman, General Attorney, Chicago and Northwestern Railway Company; and Leon Rothenberg, Director of Research, Federation of Tax Administrators. The work of the Center's Reference Librarian, Miss Marianne Yates, is deserving of special notice.

Grateful acknowledgement is made to the many public and private officials who took the time to advise and counsel the staff of the study. Special thanks should be given to the staff of the Division of Highways, State of Illinois and to Messrs. Clyde North, Assistant Comptroller of the Chicago Transit Authority; William J. Mortimer, Superintendent, Cook County Highway Department; J. Douglas Carroll and his staff at the Chicago Area Transportation Study; Clifford Campbell of the Chicago Plan Commission; Wayne Johnston, President, Illinois Central Railroad; Downing Jenks, President, Rock Island Railroad; Ben W. Heineman, Chairman, Chicago and Northwestern Railway; and Erwin E. Popcke, Secretary, Illinois State Mass Transportation Commission.

None of the foregoing consultants or advisors are, of course, in any way responsible for the conclusions made in this study or for any errors therein.

Franklin M. Kreml
Director
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Evanston, Illinois
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INTRODUCTION

The degree, nature and propriety of public intervention into the business of transportation (both the demand for and supply of) have been matters of public dispute since the beginnings of the republic. Compromises and temporary resolutions of the dispute have not kept us from building what is undoubtedly one of the best transport systems in the world even if the lack of basic resolution may have prevented us from building the best of which we are capable. Students of government marvel at how well we have done and professional transportation men feel frustrated that we have not done better.

The foci of our transport systems are in our large metropolitan areas -- here are the terminals of our regional and inter-regional transport, the local distribution systems, the large assembly systems -- all complicated and to some extent disrupted by the vast internal circulation systems handling purely local movements to and from work, recreation and shopping, as well as local goods delivery.

In these areas acute transport problems have arisen, of which the problem of the government's role must be considered as one of the most basic. The problems should not, however, blind us to the most essential fact -- the systems are working -- and amazingly well in light of the heavy demands which have been placed on them in the post-war years. To some substantial extent our magnification of the problems,

which result from our anticipation of greater demands being made on transport facilities, has made us discount the degree of success we have achieved in meeting the demands so far.

It is from this base of what we feel to be justified optimism and faith in our present institutions and processes (both public and private) that we wish to start our discussion and analyses of the problems.

There has been no lack of orderly review of government's role in the promotion and regulation of transportation at the national level[1] nor of the problems of metropolitan transportation and local governments' responsibilities therefor.[2] In addition, almost all large cities

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[1] Report of the President's Committee on Administrative Management (The Brownlow Report), GPO, Washington, 1937.

Commission on Organization of the Executive Branch of the Government, "The Independent Regulatory Commissions," Washington, 1949.

Charles Dearing and Wilfred Owen, National Transportation Policy, The Brookings Institution, Washington, 1949.

Board of Investigation and Research, "Report on Practices and Procedures of Governmental Control," GPO, Washington, 1944.

A Report to the President from the Secretary of Commerce, GPO, Washington, December 1949.

Federal Coordination of Transportation, Public Aids to Transportation, Vol. I through IV, GPO, Washington, 1940.

Presidential Advisory Committee on Transport Policy and Organization, "Revision of Federal Transportation Policy," GPO, Washington, 1955, (The Weeks Committee Report).

[2] Urban Land Institute, Technical Bulletin 31, "The New Highways: Challenge to the Metropolitan Region," Washington, 1957.

The Annals, Volume 314, "Metropolis in Ferment," Philadelphia, 1957.

Tax Institute, Financing Highways, Princeton, 1957.

Governmental Affairs Institute, Proceedings. "National Conference on Metropolitan Problems," New York, 1957.

Wilfred Owen, The Metropolitan Transportation Problem, The Brookings Institution, Washington, 1956.

John C. Bollens, The States and the Metropolitan Problem,

have concluded, or are in process of conducting, large-scale investigations of transportation problems and their implications for the particular city. Chicago is no exception. In addition to the agencies mentioned in footnote two, page two, the Chicago area is the subject of investigation by:

1. The Chicago Area Transportation Study, "whose overall objective is to prepare a plan for transportation for the Chicago metropolitan area, with primary reference to the transportation of persons."[1]

2. The Illinois State Mass Transportation Commission, whose aims and objectives are "the study and analysis of all phases of mass transportation in congested urban areas of the State; the consideration and making of recommendations for legislation to the 71st General Assembly; the determinating of facts and public interest conclusions for the improvement of urban and suburban bus lines, suburban commuter railroads, and the Chicago Transit

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Council of State Governments, Chicago, 1956.

University of Pennsylvania Law Review, Vol. 105, No. 4, "A Symposium on Metropolitan Regionalism: Developing Governmental Concepts," Philadelphia, 1957.

Leverett S. Lyon, Editor, Governmental Problems in the Chicago Metropolitan Area, University of Chicago Press, Chicago, 1957.

Chicago Home Rule Commission, Modernizing a City Government, University of Chicago Press, Chicago, 1954.

John C. Bollens, Special District Governments in the United States, University of California Press, Berkeley, 1957.

Metropolitan Housing and Planning Council, Metropolitan Planning, Chicago, 1956.

Business Executives' Research Council of Greater Chicago, "Chicago's Metropolitan Growth," Chicago, 1955.

Ernest A. Grunsfeld and Louis Wirth, "A Plan for Metropolitan Chicago," The Town Planning Review, Vol. XXV, No. 1, April 1954.

[1] CATS, "Program of Analysis," 30,005-IB, p. iii.

Authority."[1]

3. The Northeastern Illinois Metropolitan Area Planning Commission, the recently constituted agency which has general planning advisory functions for the six-county metropolitan area.

There are, moreover, the agencies of local, county, special district and state governments which have a continuing interest in and responsibility for regulating, planning, constructing, and/or operating one or another segment of the Chicago metropolitan area transport system.

There is at present in the Chicago area much public interest in the problems of its transport system, as evidenced by the special agencies formed to study them, and considerable awareness that these problems are getting worse. There have been many specific proposals offered as solutions, most of which are physical plans for specific physical improvements.

These physical plans and proposals, however, have come before any real agreement, understanding, or even discussion has taken place regarding the basic public policy questions raised by transport problems. Many people have been reluctant, quite naturally, to embrace a specific proposal before having had time to consider the public policy question behind the proposal, and the implications of that public policy for the future.

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[1] First Interim Progress Report of the State Mass Transportation Commission to the Government of the State of Illinois, etc., Chicago, December 31, 1957, pp. 1-2.

The purpose of this study is to raise the public policy questions behind the metropolitan Chicago transportation problems to the end that adequate public policies can be formulated.

CHAPTER I

THE PROBLEM

The basic problems of transportation in the Chicago metropolitan area are problems of public policy, answers to which must be given, in the final analysis, by the electorate. The questions are these:

1. To what extent, and for what purposes, should the public intervene in the supply of and demand for transportation services through such devices as licensing; regulation of entry, abandonment, service and price; promotion; planning; construction and/or operation of transport facilities?
2. What processes of public decision-making and structure of government should be utilized in any such interventions?
3. How should such interventions be financed?

Partial answers have, of course, been given to some of these questions. Roads have become almost completely a public responsibility, some forms of private carriage are regulated, some transit services are publicly owned and operated. No real public consensus has formed, however, and the above questions recur with each new decision. Moreover, some of these answers seem to conflict with others, and the factual situation is a tangled web of local, state and federal responsibilities, regulation and investment.

This should not be surprising, since public policy on the

questions was formed piece by piece over the last 100 years, necessarily bound by the compromises necessary at the time and by the technology of the era. In transportation, as in most other areas of public decision, there is no automatic review of policy in light of changed circumstances.

Quite obviously not all problems of transportation are problems of public policy. Even if the public were not involved in transportation, some of the problems are inherent in any industry whose basic technology changes so rapidly and whose market demands are shifting. Most of these inherent problems, however, cannot begin to be solved until new public decisions are made which decide the manner and kind of public investment in the transport system and the manner and kind of restrictions on private investment.

It should be kept in mind that these public decisions will have to be taken not only at the local level but also at the state and federal level and that no decisions are likely to be taken which seriously restrict individual freedom to choose among the various kinds of transport service available.

The particular questions in the Chicago area transportation problem which will be answered, in principle, when the three prior questions of public policy are decided are these:

1. What is the extent of public responsibility for transportation in the area, should this be vested in one or in several agencies, and in what way should such agency or agencies be made responsible to the electorate?

2. Should private transportation companies (suburban railroads, bus lines, taxis) be subject to the manner and kind of regulation on entry, abandonment, service, and price which they are now subject to under state and local laws?

3. Should the Chicago Transit Authority, or any other common carrier (public or private), be given public funds or facilities paid for by public funds to augment its revenues from fares?[1]

4. Should costs of the highway system be paid for completely by user charges (license fees, wheel-taxes, and motor fuel taxes) or should general tax sources also be utilized?[2]

We shall now consider each of these questions in turn.

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[1] The CTA also receives substantial income from charter service and rental of its properties.

[2] It should be noted that questions 3 and 4 are completely separate issues. The notion that the public has no right to, or should not, give non-user, public support to one form of transportation without giving it to other forms has no foundation in law or common-sense. The only foundation such a contention has is that it may result in a misallocation of resources in a strictly economic sense. Whether or not it would, however, is only one factor, and not generally an over-riding factor, in any public decision to allocate money.

CHAPTER II

QUESTIONS AND ANALYSES

What is the Extent of Public Responsibility for Transportation in the Area

Analysis

In general terms, it has become a recognized public responsibility to take remedial steps in any segment of the private economy deemed essential to the welfare of the community when that segment is not functioning in a manner acceptable to the general electorate. The main variables in that statement are definitions of what is "essential to the welfare of the community" and what is "acceptable." Both of these variables are perforce defined by the electorate. "Remedial steps" may include regulation of the industry or exemption of the industry, or parts thereof, from the usual tax burdens, the giving of public funds to the industry, the imposition of special taxes or fees, (such as excise taxes) or the actual purchase of the industry by the public to insure continued operation, either publicly or by contract to private management.

On the national and state levels, remedial step questions generally coalesce into positions taken by the two main political parties and reasonably satisfactory public discussion and understanding of alternatives is reached. On the local level (which is perhaps the level of government historically most likely to face these decisions) the questions seldom are brought into sharp focus through the normal political processes. The questions here are most likely to be framed by

technicians in terms of technical "efficiency." The broader issues are seldom presented to the electorate or even to its elected officials, who must instead wrestle with contending technical arguments which they, and the public, are poorly equipped to do.

In the Chicago area, the remedial step questions at hand presently involve decisions as to how, if possible, to preserve private suburban rail transportation, whether to run it publicly where private operations cannot be preserved, what to do about the increasing pressure of private auto transport, particularly in the congested areas, and the future of the CTA.[1]

Although technical questions of relative costs and "efficiencies" of one or another mode of transport have figured largely in the discussion of these questions to date, such technical questions are extremely tangential to the main issues involved. The main issues are these:

1. What is it possible to do?
2. What public purposes can be furthered by taking action on these questions?

With reference to 1.:

a. It is probably not possible to reverse the area-wide relative market demand[2] trend away from common carrier transportation

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[1] The matter of the CTA is so pivotal that a separate question is devoted to it.

[2] It should be emphasized that market demand is more than an abstract economic term. It is a measure more precise, by far, than any yet developed for determining what the popular choices of the total community are. It, therefore, reflects popular will in a way that no special interest or pressure groups can.

and toward the use of private autos by any public action likely to be approved by the electorate. Specifically, no improvements that may practicably be made in the present technology of the common carriers is likely to result in any reversal of this trend, (see Appendix I). Nothing short of a major technological break-through in this area, which is not foreseen now, will be able to re-capture the share of the passenger market which the common carriers used to have. This does not negate the fact that some parts of the Chicago area may be able to support even expanded or improved rail and bus service, if skillful managerial ingenuity is allowed and is forthcoming.

b. Since there will probably be, for the foreseeable future, an absolute demand for common carrier transportation to the Loop high enough to enable public and private agencies to run self-supporting services to the Loop, it will be possible to provide for increases in the amount of private auto transportation to the Loop (both access and parking) without destroying the Central Business District. Chicago is happily blessed both with common carrier facilities adequate enough to retain many riders, and even to increase the number, and with space enough to handle increased private auto terminal facilities around the Loop. The spectre of "if everyone drove his car to work" is not a real possibility in Chicago in the foreseeable future.

With reference to 2.:

a. If removal of certain restrictions would help preserve some of

our suburban rail services, this would serve a useful public purpose. We discuss this in a separate question.

b. The purchase, or contractual public payment to owners, of other private companies whose services cannot be sustained by fares, regardless of managerial ingenuity, would do two things. It would preserve a facility, but would not insure that anyone would use it, and it would present the public with a decision in the area of general planning. If any public purpose is served by such an investment, it would only be a purpose revealed in connection with the general planning objectives of the community and should, therefore, be decided in those terms and through the general planning processes. For example, existing rights-of-way extending for substantial distances within the metropolitan area should be purchased by the public rather than let such rights-of-way be broken up.

c. With reference to increasing pressure of private auto transport, there can be no useful public purpose served by attempts to restrict this demand so long as there exists no alternative which the public will accept. In other words, the demand picture must be changed, otherwise all that will result is a restriction of the basic economic activity of the area. Certainly, however, it is serving a useful purpose to meet this pressure in ways which do not conflict with the general planning objectives of the community. This involves some type of coordination with the planning process and is discussed separately.

Should This Public Responsibility be Placed in One or in Several Agencies

Analysis

We have maintained that there are features of the public responsibility for transportation which are part and parcel of the public responsibility of planning. This being so, it is essential that the planning of any public transportation activities (investment, construction, or routing) take place in conjunction with the general planning processes, and should take private transportation facilities into account. It is not essential, however, that the administration or operations of transport facilities be done by one agency because of this.

Accomplishing this coordination of planning is critically complicated, at present, by the fact that public transport planning responsibilities are not clearly defined and are diffused throughout a variety of special authorities, districts, and municipal, county, and state governments.

Public responsibilities of general planning are hardly less complex, although here at least a beginning toward area-wide planning has been taken with the creation of the Northeastern Illinois Metropolitan Area Planning Commission. In addition, the planning agencies of municipalities can and, to some extent, do coordinate their planning activities.

These complexities need not stifle the possibility of there being, before too many years, some agency or staff which could consider area-wide transport planning, either in conjunction with the NIMAPC or as a part thereof.[1] The complexities do suggest, however, that there

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[1] The Chicago Area Transportation Study has been a step in this direction, but the scope of this work must go beyond that which is presently assigned to CATS.

is not likely to be any pat formula which can be applied, or any drastic changes which could be successfully made in the near future. Changes in governmental structure and processes are necessarily slow and painstakingly made, and quite properly the result of compromises.

The present situation is one in which some agencies planning transport have rejected the idea of letting market demands shape their planning decisions and are instead attempting to promote a particular community structure without, in any wise, being competent or authorized to deal with general planning policy. Even if they were both, however, technical transport agencies are not the proper center from which to determine planning policies. The fact that they have had to do so, in some instances, is further reason to work toward a government structure which ties together transport planning and general planning.

A feature of the governmental structure which further complicates the picture is the regulatory control over private common carrier transportation in this area, now vested in the Illinois Commerce Commission. It is essential that this power be vested in an agency responsible for this area only, and operated under laws originating and approved by the electorate of this area if any uniformity in public decisions is to be achieved. If the citizens of the area cannot draft the laws governing purely local (in this sense, the metropolitan area) carriage, they are not likely to be successful in furthering rational public investment in transport facilities.

On the other hand, it is just as important to prevent purely parochial interests (as opposed to those of the whole metropolitan area)

from distorting the system through the "log-rolling" technique. This fact leads inescapably to the necessity of having some matters decided on a metropolitan basis.

The contemplation of a regulatory control, even more subject to local pressures than it is now, may understandably fill private management with anxiety; their present efforts are directed toward moving such controls from the state to the federal level of government in order to escape local pressures. However, their efforts now are an expedient deemed necessary because of the present pattern of regulation. While logical in the short run, their efforts would concentrate more authority in Washington, and once there, it is doubtful that it would ever return. Consequently, the effort is not consistent with the generally accepted philosophy of dealing with local affairs locally. Moreover, the controversy regarding extent of regulation over price, service, and routes is not likely to be resolved finally until the issues presented in our question on public regulation are faced squarely at the local level.

In What Way Should Such Agency or Agencies be Made Responsible to the Electorate

Analysis

We have said that to the extent that public decisions in transport planning are not shaped by market demands, they should be made in conjunction, or as a part of, general planning decisions. The purpose of this is to get transport planning decisions into the stream of public decision-making by elected officials of general government.

The role that each mode of transport is to play in the area, insofar as public investment is not shaped by demand, is a matter for elected officials, responsible to the electorate, to decide. It cannot be left to appointive boards, to technicians, to special districts, or authorities. This is not to say that the general government officials should not have expert technical advice. Certainly they should.

The expert technical advice, however, needs to be reconciled before it comes up for decision. The actuality and continued prospect of several transport agencies, in effect, campaigning before the electorate for particular programs makes neither for good administration nor good public decisions.

Transportation is only one of many problem areas which is complicated by the lack of a structure of government adequate to the geographical scope, the technical complexities, or the social implications of the problems. For some years this lack has been compensated for by the creation of special authorities or districts with jurisdiction over a particular problem. Most students of government are now aware that these devices are weakening the general governmental structure and are

taking out of the hands of the electorate crucial decisions which they should make.

This study was not intended to deal with the general problem of government in metropolitan areas. It is necessary, however, to point out in this analysis that transport planning is one of these crucial decisions which the electorate must, in the final analysis, make and for which they do not have the proper governmental means to do so now.

It must be emphasized that we are here talking only about transport planning. There is no indication that operations should be centralized or subject, normally, to public review any more than is any other technical or administrative procedure. For example, it is possible for there to be many agencies operating transit services, if the planning for these operations is carefully coordinated.

Recommendation

We recommend that official study of the general problem of government in this metropolitan area be intensified, that transport planning be considered as a part of this study and not placed in a special district, authority, or commission. We suggest that greater cooperative effort should be made by the municipalities and counties of the area to the end that general planning policies are adopted.

We further recommend, in the absence of any publicly approved planning policies to the contrary, that market demand for transport services be the guide-post for any immediate further public investment in transport facilities. We suggest that competent staffs need to be employed by general government if this guide-post is to be properly read.

Should Private Transportation Companies (Suburban Railroads, Bus Lines, Taxis[1]) be Subject to the Manner and Kind of Regulations on Entry, Abandonment, Service, and Price which They are now Subject to under State and Local Laws

Analysis

The traditional reasons for regulating entry, abandonment, service and price of private transportation companies which engage in common carriage of passengers are these:

1. To protect the public from monopolistic prices.
2. To give some protection against "unrestricted" competition to the companies which invest in large, fixed plants.
3. To insure that equal or non-discriminatory treatment is given to all customers.
4. To attempt to insure stability and economic health to an industry which performs an essential public function.

Two developments have occurred which have largely vitiated the strength of present regulation to do these things.

1. The acceptance of the private auto for passenger transportation has had the effect of greatly reducing the dangers of monopoly pricing and discrimination, and made all private transport investment subject to "unrestricted" competition.
2. Changed economic and social patterns have resulted in marked

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[1] The Transportation Center recently completed a study for the City of Chicago, the conclusions of which were that there was no justification for limiting entry into the field or for regulating the level of fares. For a full discussion see "The Operation and Regulation of Taxicabs in the City of Chicago," a Research Report prepared by The Transportation Center at Northwestern University, March 27, 1958.

instability and very poor economic health of many segments of the common carrier industry.

Both of these developments are basic changes in the demand for transport services -- a marked relative increase in the demand for private auto transport and a relative decrease and shift in demand for private bus and rail transport. These changes in demand may have been heightened by regulatory restrictions on private bus and rail companies which prevented them from experimenting with service, route patterns, and fares so as to try to meet the competition of the auto and changes in riding habits. We cannot say that they have been heightened substantially by the fact that autos, which utilized a multi-purpose public right-of-way, may not have always paid their full share of the cost of that right-of-way or of parking facilities. Even with high taxes, toll, and parking charges, demand obviously continues at a high level. Changes in the general level of economic activity and personal incomes, local geography, and provision of facilities seem to be the only regulators of demand for private auto transportation.[1]

One of the effects of the present pattern of regulation on entry, abandonment, service, and price is that of forcing some common carriers to provide service to areas and at prices which result in losses to the carriers. This, in effect, is forcing the stockholders of those companies to subsidize the riders of its lines. Without commenting on

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[1] Since most of the electorate own and drive autos, they may be expected to defeat any attempt to restrict demand through the charging of fees which more than pay for facilities or the deliberate provision of fewer facilities than the market calls for.

the inequities placed on one portion of the electorate to the benefit of another portion through a most peculiar medium, ill-fitted for this purpose -- a private corporation -- it will suffice to say that this will not long continue. Quite soon the corporation will have cause to take legal action to enable it to abandon a basically unprofitable service.

It is not to be expected, therefore, that present regulatory restrictions will preserve what are basically unprofitable services by private companies for the communities which now enjoy them. Whether or not any of these unprofitable services should be taken over by public authorities and operated by them is a separate question and is treated separately.

Chicago has areas, particularly in the suburban rail field, where profitable operation seems a definite possibility if greater freedom on service and pricing were given to private management. It also has areas where lines have been abandoned, and others where abandonment may be indicated even though greater managerial freedom is given.

There evidently remains a widely-held opinion that the only reason that private transport companies cannot profitably operate suburban service is that they are inefficiently managed or are somehow "hiding" the real profits they make. This opinion is sometimes coupled with the belief that the companies have an obligation to serve, even if they do lose money.

Although the lack of validity of these statements is easily demonstrated, they must be recorded here because of their influence on some portions of the electorate.

Recommendation

We recommend that the question of restrictions on entry, abandonment, service, and price of passenger services by private companies be officially reviewed and suggest that many such restrictions are not now serving the public purpose for which they were intended, or indeed, any public purpose.

This recommendation does not contemplate any relaxation of public obligation to set, and enforce, standards of safety and competence and willingness to perform.

Should the Chicago Transit Authority be Given Public Funds or Facilities Paid for by Public Funds to Augment its Revenues from Fares[1]

Analysis

The creation of the Chicago Transit Authority was an attempt to preserve, for Chicago and some other parts of Cook County, a self-supporting, local common carrier passenger service. The Authority, having been hit by declining demand because of basic technological, social, and economic changes, now has the alternatives of redesigning the extent and nature of its services in order to remain self-supporting[2] or of asking for public funds to supplement what it now earns from fares so that it may hold its present pattern of services and even expand them. It has chosen to do the latter and has initiated a direct public campaign for support of its position. While there are, at present, no restrictions against this, we have contended that it is an improper procedure.

If the Authority had chosen to shape itself according to market demand, we would suspect that the following general shape of services would result:

1. Fewer local services, some of which might be at lower fares.
2. Continued intensive service to high demand generators, such as

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[1]In general, the same principles and analysis would apply to public investment in any common carrier transport agency, public or private.

[2]It should be noted that CTA has the right to set fares and services without reference to any regulatory body, so long as its fares are sufficient to meet its obligations and expenses. It is, in these respects, in a position roughly analogous to most private businesses.

the Central Business District, perhaps at higher fares.

3. Less night-time service in all areas.

4. An internal circulation system for the Central Business District.

Such a pattern of services would accord, in our view, with the present market demands for a local, common carrier of passengers in the Chicago area.[1]

Since the Authority has chosen the second alternative, their discussion has centered around "community benefits," "community needs," and the "efficiencies" of transit versus autos as a means of transporting people. Although much could be said about the use of these terms, it should suffice to say that the Authority, however competent it is to operate a bus and transit service, does not have the competence or authorization to assess or prescribe community benefits and needs, and that technical efficiencies, in a free society, count for far less than individual choice.

The basic issues involved in granting public funds, from whatever source and for whatever purpose, to the Authority are:

1. Would further expansion in transit facilities be justified from a market demand standpoint? There is no evidence that it would be, because, at present, we do not have the analysis necessary to determine where investment would be justified.[2]

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[1] We should also add that, to the extent the Authority is subsidizing various school districts by carrying school children at less than full marginal cost, it should be compensated by contractual arrangement.

[2] The CATS data, when completed, should offer clues for further expansion on a self-supporting basis.

2. Is the Authority a proper instrument through which some public planning policy calling for over-investment in transit facilities might be furthered?

There would seem to be no reason why not, provided that such policy was developed by general government (municipalities or counties) in the exercise of their planning responsibilities, and provided that a business-like contractual arrangement was made which did not obligate either the municipalities involved or the Authority beyond the specific conditions of the contract.

We emphasize that, at present, there is no general planning policy which calls for such over-investment and we suggest it would be unlikely that any will be developed. Most transit demands made by general planning policy would normally be demands which are responsive to, even if they somewhat shape, market demands and, therefore, self-supporting.

3. Are there Authority facilities which would be lost under acceptance of a market-oriented system which are essential for so-called stand-by service (assuming the validity of stand-by service arguments)?

This question is too frequently asked in terms of "what would we do if there were no local transit?" We believe that the Authority can be self-supporting (and recent financial reports from CTA support this belief) at a level of service high enough to handle the extra pressures of emergency demands which are likely to be made on it.

4. Is the Authority a proper vehicle for furthering public welfare policies?

There are many people who plead for low fares and comprehensive services (all at a loss to the Authority) on the grounds that there are people, for example, school children, who need this service at these fares. We suggest, however, that such services are far more equitably given through contractual agreements rather than by throwing an undue burden on the Authority.

Recommendation

We recommend that the Chicago Transit Authority continue to maintain itself as a self-supporting service, at whatever levels of service and fares which this involves. We suggest that the present level and scope of service cannot likely be maintained economically. We also suggest that further blanket increases in fares in an attempt to do so is not an adequate substitute for a market-oriented system and the consequent selective fare adjustments which this implies.

We suggest that the authority or district device is not an appropriate tool for further integration or consolidation of area-wide governmental responsibilities for transport planning and, therefore, recommend against using the Chicago Transit Authority for such purposes.

Should Costs of the Highway System[1] be Paid for Completely by User-Charges (License Fees, Parking Fees, Wheel-Taxes, and Motor Fuel Taxes) or Should General Tax Sources also be Utilized?

Analysis

There is a voluminous technical literature on the question of whether the user pays for highways now. (Our own contribution to this technical question may be found in Appendix II.)

There is also a growing literature on whether users should pay the total costs, which is the more basic issue for policy decision. This latter question has been approached by trying to assess the relative "benefits" of highways to the users, to the owners of property whose value is affected by the highway, to the general community, and to national defense. Such assessments as these, while technically interesting because they are difficult, are exercises in futility in terms of decisions.

Any investment, public or private, confers benefits which reach beyond the immediate focus of the investment. It is, in almost all cases, impossible to assess the value of that indirect benefit and recover it for the investor. Your house may appreciate in value because other people build better houses around it. Your health may be protected if your neighbors invest in medical care. The general community benefits in both cases. These "benefits" are not assessed and returned to

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[1] There are, of course, substantial questions of definition of what constitutes "the highway system." Briefly, we are considering not only arterial streets and highways, but also most of the area's city streets. We do not include alleys or dead-end sub-division streets, which we feel are still a legitimate charge to the property owners.

the investor; they are tangential to his decision to invest and need not be paid for.

Likewise, in public investments, general public benefits (and, therefore, general tax funds) need not be considered unless:

1. The direct beneficiaries cannot pay for the investment (as is the case of welfare and relief).
2. The direct beneficiaries are the same group, in the main, as the general community (as is the case of education, police, and fire protection) and it is, therefore, more convenient to collect the monies through general taxing powers.
3. The public has decided, for some reason, to invest in more of the service than the direct beneficiaries are willing to pay for (as would be the case if public funds were used to extend transit, for example).

It is surely evident that the demand for private auto and truck transportation is high enough that none of the foregoing three considerations apply. The most compelling reason why general tax sources should not be utilized for helping to finance the highway system costs is that they are not needed, whereas these general tax sources are hard pressed to respond to the other, urgent needs of the community which a growing population has intensified. An ancillary reason is that, in the absence of any public purpose to the contrary, charging the full costs of highway systems to the user allows the using public to "vote" how much and what kinds of these facilities it wants and, therefore, determine the size of public investment to be made.

The determination of highway costs and collection of these costs

from the users is complicated by the different levels of government which impose user-charges and the inequities resulting from the pattern of distribution of these monies among governmental units. This pattern results in the Chicago general tax sources being used to pay for a part of highway costs even though the Chicago motorist pays, in user-charges, an amount roughly equivalent to the full costs of these facilities. (See Appendix II.) This pattern is true nationally and is the result of a structure of government which has not caught up to the realities of the present urban-rural pattern. If public investment in highways is to be recovered by user-charges, the investment should bear some closer relationship, geographically, to where the users are.

Recommendation

We recommend that costs of the highway system be fully recovered by user-charges, and suggest that the collection and allocation of present user-charges be reviewed to the end that the Chicago metropolitan area receives an equitable share of such monies.

CHAPTER III

TRANSPORTATION AND GOVERNMENTAL FISCAL POLICY

We have indicated the desirability of financing public investments in transportation facilities through user-charges. We have maintained this for the following reasons:

1. It is a feasible method (and this fact alone is overwhelming to students of public finance) which does not throw an additional strain on already overburdened general tax sources.
2. It allows the investment size to be governed by consumer demand and hence protects against uneconomic allocation of resources.
3. There is no presently approved public policy which runs counter to allowing the size of the transport investment to be governed by consumer demand.

The concept of user-charges as a device for proper allocation of public investment in these areas is well established. It was perhaps first stated in modern times by Adam Smith.

> That the erection and maintenance of the public works which facilitate the commerce of any country, such as good roads, bridges, navigable canals, harbours, etc., must require very different degrees of expense in the different periods of society is evident without any proof. The expense of making and maintaining the public roads of any country must evidently increase with the annual production of the land and labour of that country, or with the quantity and weight of the goods which it becomes necessary to fetch and carry upon those roads.
>
> It does not seem necessary that the expense of those public

> works should be defrayed from the public revenue . . . . The greater part of such public works may easily be so managed as to afford a particular revenue sufficient for defraying their own expense, without bringing any burden upon the general revenue of the society.
>
> . . . . It seems scarce possible to invent a more equitable way of maintaining such works. This tax or toll too, though it is advanced by the carrier, is finally paid by the consumer, to whom it must always be charged in the price of the goods. As the expense of carriage, however, is very much reduced by means of such public works, the goods, notwithstanding the toll, come cheaper to the consumer than they could otherwise have done; their price not being so much raised by the toll as it is lowered by the cheapness of the carriage. The person who finally pays this tax, therefore, gains by the application more than he loses by the payment of it. His payment is exactly in proportion to his gain. It is in reality no more than a part of that gain which he is obliged to give up in order to get the rest. It seems impossible to imagine a more equitable method of raising a tax.[1]

A more recent statement, specifically on roads, is made by Lyle C. Fitch, Director of Fiscal and Economic Research, Division of Administration, New York City.

> There is nothing new about user-charges for revenue. Tolls, motor fuel taxes, and other impositions are increasingly circumscribing the long-cherished principle that the nation's roadways should be free to all comers, like the air to the flying machine. The latest manifestation of this tendency is the Congressional decision to finance the stepped-up highway construction program by increasing taxes bearing directly on motor vehicle use.
>
> The implication is that the quantity and quality of roadways should be limited to what users are willing to pay for. That is, investments in roadways are considered to pay off if their users will meet their costs, and not primarily because of external economics or indirect benefits, such as the amount of economic development they may stimulate. There is increasing acceptance of this test, implicitly in the decisions of state and national legislatures tying roadway construction and maintenance to highway user revenues and explicitly in much of the recent literature on highway finance.[2]

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[1] Adam Smith, An Inquiry Into the Nature and Causes of the Wealth of Nations, Great Books Edition, Encylopaedia Britannica, Inc., Chicago, 1952, pp. 315-16.

[2] Lyle C. Fitch, "Financing Urban Roadways" in Financing Highways, The Tax Institute, Princeton, 1957, pp. 140-41.

A succinct modern theoretical statement on user-charges is given by Simeon Leland.

> Utility revenues, or user-charges, rank second among the broad categories of governmental income . . . . They are collected in return for definite services supplied to consumers. If viewed as taxes, many of them would be classified as regressive; but so is the price of bread, coffee, or tea, not to mention other commodities, sold on the open market. It may not be appropriate to ask users of gas, water, electricity, etc., to pay enough for these utilities to produce a surplus above cost so as to defray a portion of the costs of general government. But, unless the rates cover all costs, including overhead and management, a portion of which is in general government, the users may be subsidized at the expense of other taxpayers . . . . Certain it is that total costs should be met as a minimum.[1]

Luther Gulick, President of the Institute of Public Administration, former Administrator of the City of New York, and perhaps the dean of active public administrators, writes,

> In view of the wider metropolitan requirements -- so many of which relate to costly transportation, major land purchases, recreation, and public utilities -- it is no longer possible to rest back on present concepts as to tax and debt limits, or to exclude the use of "pricing," that is, charging for the use of specific services. Pricing will not only relieve tax burdens, but will regulate use and give the public a good chance to "vote" with their dimes and quarters for the services they really want and find beneficial.[2]

The proper use of user-charges involves three things. First, identifying and utilizing direct collection possibilities where feasible. These would obviously include transit fares and parking fees. Second, where direct collection at time of use is not feasible, having

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[1] Simeon E. Leland, "An Ideal Theoretical Plan of Finance for a Metropolitan Area" in Financing Metropolitan Government, The Tax Institute, Princeton 1955, pp. 257-58. Emphasis added.

[2] Luther Gulick, "The New Highway Program Requires Metropolitan Cooperation" in The New Highways: Challenge to the Metropolitan Region, Urban Land Institute, Technical Bulletin 31, Washington 1957, p. 89.

some process of analysis acute enough to determine between alternative investments, such as a sophisticated cost-benefit or rate-of-return technique.[1] The selection is a matter of technical decision too involved to explore here. It should be noted, however, that either method is subject to distortion by improper weight being given to certain non-quantifiable variables. Third, having some agreed upon technique for assigning proportions, or shares, of the charges to the various classes of users. Here again technical analysis is involved; much study by both state and federal agencies has been carried out,[2] and it is impossible in this study to ascertain any easy formula for this assignment. Assessing the total charges against users, however, simplifies this technical analysis considerably, for it removes the necessity of assigning proportions to the general community, and hence reduces the number of shares which must be calculated. In general, we believe that incremental or marginal cost techniques, starting from the base of the private motorist and charging to other users the added costs of investment which their use entails, is worthy of serious consideration if, in the analysis, both added qualitative design features and additions to the system are considered along with maintenance.

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[1] For a discussion of these two approaches, see C. H. Oglesby and E. L. Grant, "Economic Analysis -- The Fundamental Approach to Decisions in Highway Planning and Design," an unpublished paper presented at the 1958 meeting of the Highway Research Board; and Richard M. Zettel, "Highway Benefit and Cost Analysis as an Aid to Investment Decision," Institute of Transportation and Traffic Engineering, University of California, Berkeley. Reprint No. 49.

[2] See "Allocating Highway Cost Responsibility," Highway Research Board Bulletin 175, Washington 1958.

CHAPTER IV

TRANSPORTATION AND PUBLIC POLICY

Our statement of the problem of transportation in the Chicago metropolitan area began with a judgment that the basic issues involved were issues of public policy, to be solved, in the final analysis, by the electorate. We have devoted our study to the raising of these issues, as we saw them.

We have recommended that more attention be given to genuine public demand as registered in the market place, and have indicated that such demand has not, to date, been greatly influenced by hidden subsidies to motorists.

We have urged that some restrictions on private common-carrier pricing, service, and managerial experiments be removed because we felt that demand had been influenced unduly by these restrictions. We have suggested that public agencies use their freedom in these areas to shape their services to market demand.

We have recommended that user-charges be utilized to recover the full costs of public investment in transport facilities, this being the most efficient way to accomplish a market-oriented investment policy.

At several stages in the preceding analysis we have insisted that the only justification for public investment in transportation, beyond that which market demand would justify, is in conjunction with, or

for the purpose of, furthering some publicly approved general planning policy. We have maintained that technical transport agencies should refrain from attempting to make these general planning policies and from campaigning for particular plans. We believe this is the only way to avoid over-investment or investment in "white elephants" and technically obsolete or poorly placed facilities.

We now must record our belief that such general plans are, regrettably, not yet to the public policy decision stage. It is to be hoped that the combined efforts of municipal planning agencies, the Chicago Area Transportation Study (whose staff was forced to develop their own concepts of a general plan for the region in the absence of any previously developed), and the Northeastern Illinois Metropolitan Area Planning Commission can overcome this basic deficiency.

We have also recorded the lack of any instrumentality of general government to which such general plans, when developed, could be submitted for organized review and public approval.

It is the absence of the two essential processes of planning and public review which has led us to devote most of the preceding analysis to a discussion of a market-oriented public investment policy for transport facilities. Nothing in that analysis should, therefore, be interpreted as opposition, per se, to public investment in transport facilities beyond market demand. Our opposition is directed toward any further public investment, <u>at this time</u>, because such investment plans have not been geared into the normal planning and review processes.

It is obviously not within the scope of this study to try to construct a general planning process or a structure of general government

for this area adequate to the tasks they must bear, one of which is transport planning. We do point out, however, that basic solutions to the transport problems of this area will not be reached without such processes and structure. Much can be done in the area of general planning now, of course, through cooperative efforts of municipalities and counties of the area.

Moreover, we have suggested that most general plans, when developed, will likely not call for over-investment in any form of transport facilities, but rather for investment which is likely to be self-supporting.

We believe, in a word, in both a public investment policy and a structure of government which is responsive to the will of the people it serves, and is protected from undue influence of any particular segment thereof.

APPENDICES

APPENDIX I

THE DEMAND FOR MASS TRANSPORTATION IN THE CITY OF CHICAGO

The most striking feature of mass transit in the post-war years is the general decline in the number of passengers carried annually. In order to evaluate properly the significance of the decline, the market appeal of the service, as well as the various factors influencing the demand for the service, has to be investigated.

First, it must be recognized that local mass transit is not an homogenous good, since there are qualitative differences between the service offered by the rapid transit system and the surface system. Real differences exist in terms of speed, reliable schedule, and probably convenience. Rapid transit, because of its exclusive right-of-way, is capable of offering a relatively faster service than the surface system. The result is that the cost, in terms of time, is greater when the services of surface system are bought. The disparity in the speed-cost factor is probably reflected in the greater rate of decline in the number of passengers carried on surface lines than on rapid transit. A comparison of Figures I and II gives some indication of the absolute decline in the demand for both forms of service. As if to underscore the essential role that speed and convenience plays in the decline, it will be observed that the greatest relative decline took place between 1948 and 1951 prior to the completion of the planned programme of

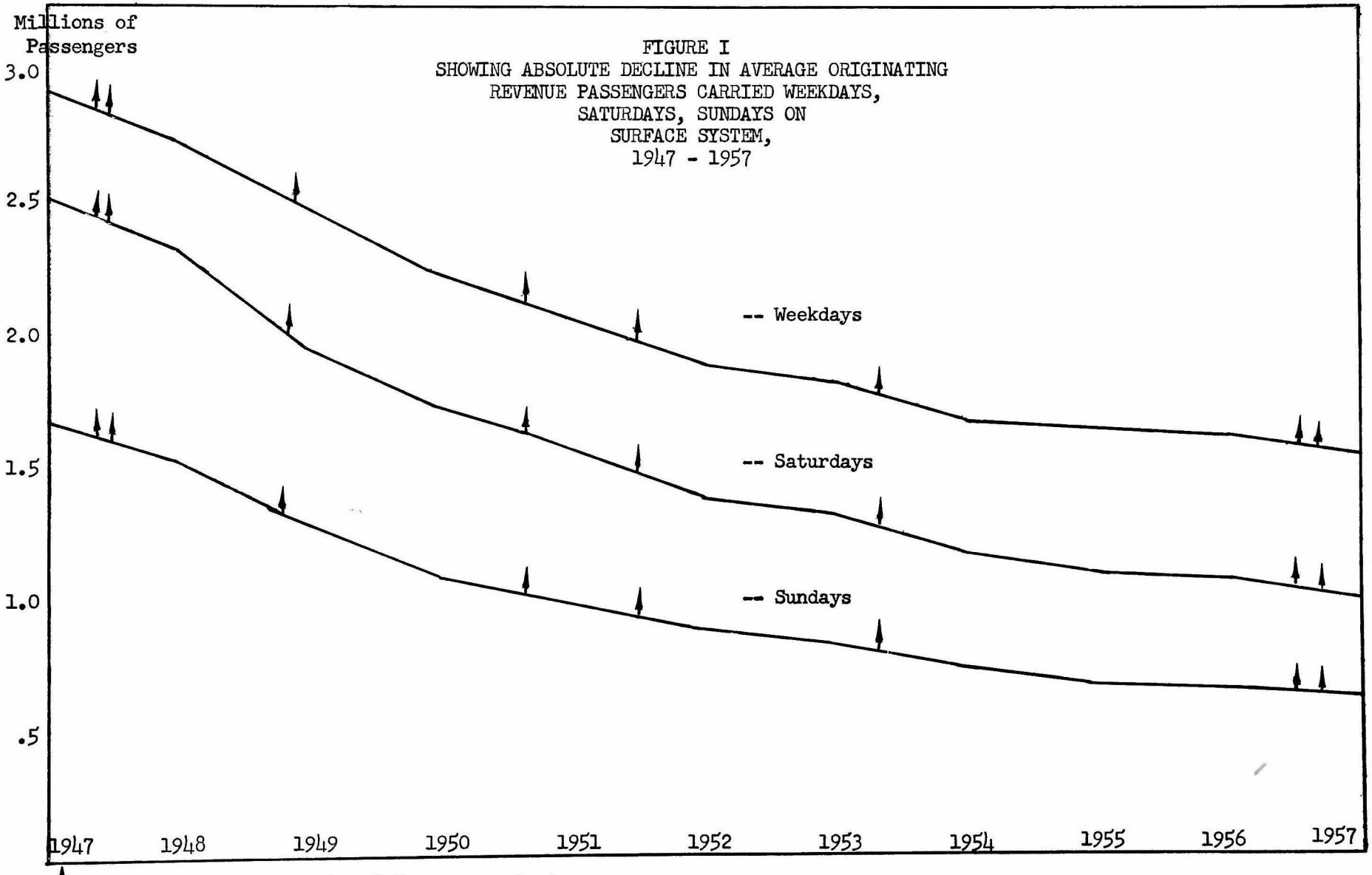


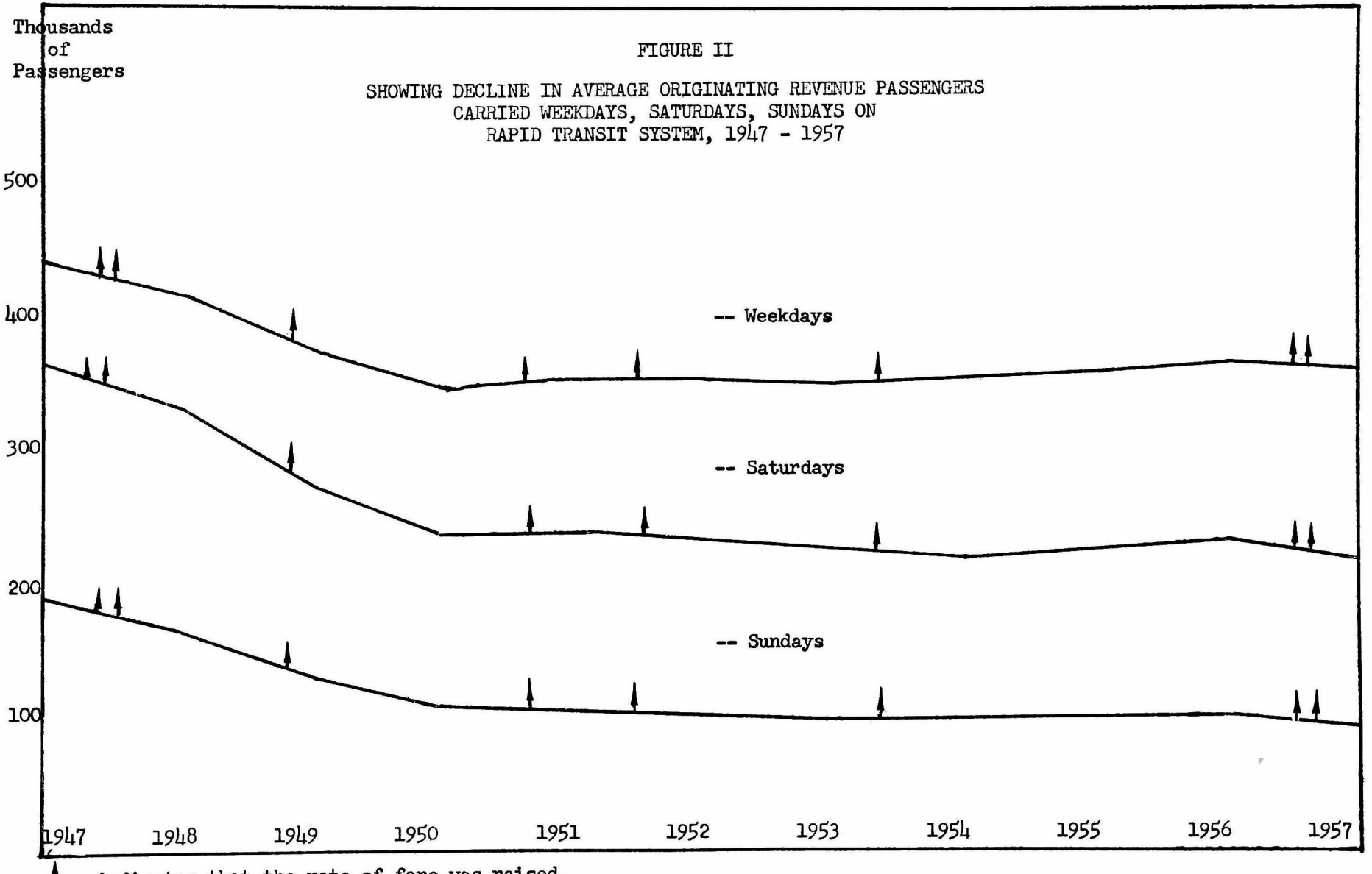
FIGURE I
SHOWING ABSOLUTE DECLINE IN AVERAGE ORIGINATING REVENUE PASSENGERS CARRIED WEEKDAYS, SATURDAYS, SUNDAYS ON SURFACE SYSTEM, 1947 - 1957

↑ - indicates that the rate of fare was raised.

Source: Chicago Transit Authority, unpublished data.

FIGURE II

SHOWING DECLINE IN AVERAGE ORIGINATING REVENUE PASSENGERS
CARRIED WEEKDAYS, SATURDAYS, SUNDAYS ON
RAPID TRANSIT SYSTEM, 1947 - 1957



▲ - indicates that the rate of fare was raised.

Source: Chicago Transit Authority, unpublished data.

modernization undertaken by the Transit Authority, and at the time when the post-war shortage of automobiles was overcome.

While this dual decline was taking place in local transit, there have been occurring, simultaneously, other significant events, namely, a rise in the general level of disposable income, and an increase in the number of private automobile ownership and use. There are indications that there is a high degree of correlation between the level of income and automobile ownership. In other words, as income increases, automobile ownership increases. This point of view is borne out by the fact that from 1948 to 1956 income per capita in Chicago rose 46.964 per cent while the per capita automobile ownership rose 47.150 per cent during the same period. At the same time the transit rides per capita declined 38.023 per cent. (See Table I.)

Inferentially it is indicated that to transportation consumers mass transit is an inferior good. As family income increases, the absolute amount of transit expenditures by each income receiving unit falls. There are physical limitations, however, in terms of highway and terminal facilities, to the indefinite continuance of the substitution of private automobile service for mass transit if the locational distribution of commercial and industrial activity remains relatively fixed.

The "inferior good" argument gains plausibility if the actual demand for mass transit is known for periods in which the fare rate was unchanged. One such period was from January 1955 to June 1956. If we regard the number of passengers carried in January 1955 as represented by 100, the comparative decline for corresponding months in the two

TABLE I

SHOWING PER CAPITA INCOME, AUTOMOBILE OWNERSHIP, TRANSIT RIDES

Year	Income[a] Per Capita	Automobile Ownership[b] Per Capita	Transit[c] Rides Per Capita
1947	$1,764[d]	.175	———
1948	1,861	.193	.263
1949	1,837[d]	.217	.229
1950	1,989	.242	.202
1951	2,139	.257	.192
1952	2,300	.248	.180
1953	2,501	.230	.187
1954	2,370	.235	.173
1955	2,572	.272	.164
1956	2,735	.284	.163
Percentage of Increase from 1948 to 1956	46.964%	47.150%	-38.023%

[a]Source: Estimated from data obtained from the Economic Research Division of the Chicago Area Transportation Study. Income per capita is money income including income imputed for certain forms of self provided services, e.g., owner occupied houses.

[b]Abstracted from data published by Engineering Board of Review; Vehicle License data, City of Chicago, 1956.

[c]Chicago Transit Authority, Annual Report, 1956.

[d]Estimated.

succeeding years is readily apparent (Table II).

Taking a similar period for the surface lines (Table II-A), again the relative decline is revealed. The first three months of 1958 indicate a considerably greater decline which is in part the operative result of fare changes in the latter half of 1957. The important point, however, which Table II shows is that, even when there was no change in the fare structure, a decline of one to three per cent took place annually. This annual decline for this period can be regarded as a measure of the effect of increasing incomes on the demand for mass transit service. This leads us to examine the demand response to changes in the rate of fares. The examination will be hampered because most of the changes have been for increased fares only. From unpublished data on average weekly passenger travel, it is evident that, as expected, the impact of a fare increase on total revenue in the short run is to raise it to a level above that existing prior to the fare increase. When riders have had time to adjust their travel habits, there is generally a decline in the number of passengers, though not necessarily a decline in revenues (Table III).

The appropriate rates of fare for mass transit could be derived from the elasticity of demand for its services if the marginal costs for either system were known. However, to find the elasticity poses certain problems. For one thing, it is only possible to establish an historical demand curve. There have been several price changes during the period and it is a fair assumption that the elasticities of differing points on the curve are different in magnitude. For instance, one month after fare increases of July 1957, the elasticity of demand is

(Corrected)

TABLE II[a]

RELATIVE RAPID TRANSIT PASSENGER LOAD
ON AVERAGE WEEKDAYS IN PERIOD
OF UNCHANGED FARE RATE

Month	1955	1956	1957	1958[b]
January	100.00	101.96	106.06	97.96
February	98.61	102.38	102.58	95.16
March	99.22	102.08	101.25	95.33
April	98.23	100.22	101.23	
May	97.15	100.08	101.00	
June	98.12	100.79	99.66	

[a] If instead of representing the number of passengers carried in January 1955 as 100, all the months of 1955 were to be so regarded, the relative decline in 1956 and 1957 would still be apparent.

[b] The year 1958 was included to illustrate the likely relative trend after fare increases had taken place in the latter half of 1957 (see p. 6).

TABLE II-A

RELATIVE SURFACE SYSTEM PASSENGER LOAD ON AVERAGE WEEKDAYS IN PERIOD OF UNCHANGED FARE RATE

Month	1955	1956	1957	1958
January	100.00	98.62	96.18	84.34
February	100.13	98.89	98.23	85.61
March	101.10	99.70	97.30	86.65
April	100.69	97.46	96.30	
May	100.78	99.75	96.81	
June	99.10	98.33	95.73	

TABLE III

PASSENGERS AND REVENUE

Year	Passengers	Revenue
1947		
1948	963,001,195	113,080,207
1949	847,111,142	113,962,649
1950	752,200,968	113,811,063
1951	696,948,179	110,586,592
1952	658,019,455	114,963,345
1953	686,560,066[a]	121,730,289
1954	641,166,501	118,755,811
1955	623,493,648	118,648,133
1956	621,282,566	117,955,336
1957	582,065,867	122,145,291

[a] The opening up of the new subways accounts for the temporary rise in the number of passengers.

Source: Chicago Transit Authority, Annual Reports.

found to be -.462 on the surface system and -.220 on the rapid transit system, respectively. In the long run (i.e., five months later) the elasticities are -.623 and -.172.

We have shown that the relative decline on rapid transit system is not as great as on the surface system. It can be shown, too, that the demand for rapid transit service is more inelastic, both in the short run and in the long run. This is due to the fact that rapid transit draws its passengers from the concentrated centers of population that provide the bulk of the work force in the central and adjacent areas through which the rapid transit passes.

In spite of the many fare increases that have been made since 1947, the hourly distribution of riders has shown remarkable stability. Significantly, the changes which have occurred were increases in the percentage of passengers carried within the rush hour periods, and corresponding decreases in the off-peak period (Table IV). In view of the known decline in the demand for mass transit, this stability of hourly rider distribution demands an explanation. The hard core of rush hour traffic is composed of home to work and work to home trips. In the postwar period (1946-1954) no less than 438 industrial firms have moved out of Chicago to suburban locations. In addition, 400 new plants were established on new locations in the suburban areas by firms not previously located in Chicago.[1] In terms of jobs, 98,500 were created. In terms of home to work (and work to home) trips, approximately 985,000 per week

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[1] Business Executives' Research Committee, Chicago's Metropolitan Growth; Northwestern University, 1954-55; also The Chicago Plan Commission, The Calumet Area of Metropolitan 1956.

TABLE IV

HOURLY DISTRIBUTION OF ORIGINATING REVENUE PASSENGERS
SURFACE SYSTEM ONLY

Hourly Period	PER CENT OF 24 HOUR TOTAL					
	December 1938		December 1943		March 1955[a]	
4:00 - 5:00 A.M.	.5%		.7%		.5%	
5:00 - 6:00	2.1		2.8		2.4	
6:00 - 7:00	8.7	11.3%	8.7	12.2%	7.7	10.6%
7:00 - 8:00	12.1		9.5		11.7	
8:00 - 9:00	5.9	18.0%	4.6	14.1%	8.3	20.0%
9:00 - 10:00	3.7		3.0		3.5	
10:00 - 11:00	3.5		3.1		2.9	
11:00 - 12:00 Noon	3.3		3.2		2.7	
12:00 - 1:00 P.M.	3.6		3.6		3.1	
1:00 - 2:00	4.2		4.1		3.7	
2:00 - 3:00	5.4		5.1		5.2	
3:00 - 4:00	7.9	31.6%	7.6	29.7%	7.4	28.5%
4:00 - 5:00	11.9		11.8		10.3	
5:00 - 6:00	6.8		8.7		11.0	
6:00 - 7:00	4.7	23.4%	5.7	26.2%	5.3	26.6%
7:00 - 8:00	4.0		4.6		3.2	
8:00 - 9:00	2.9		3.5		2.4	
9:00 - 10:00	2.8		3.1		2.2	
10:00 - 11:00	2.2		2.5		2.0	
11:00 - 12:00	1.8	13.7%	1.8	15.5%	1.6	11.4%
12:00 - 1:00 A.M.	1.0		1.1		1.4	
1:00 - 2:00	.5		.6		.8	
2:00 - 3:00	.3		.3		.4	
3:00 - 4:00	.2	2.0%	.3	2.3%	.3	2.9%
TOTAL	100.0%		100.0%		100.0%	

[a]Based on twelve principal routes considered to be a representative cross-section of the Surface System.

Source: Chicago Transit Authority.

were originated. As the majority of these new plant destinations are far removed from the fixed facilities and established routes of mass transit, it goes a far way to explain the sharp decline in demand for mass transit and corresponding increase in demand for automobile transportation service. It also explains that in spite of the decline, the distribution of rides by the hour remains fairly constant over a long period. The increase in the rush hour traffic as a percentage of total traffic may be explained by the approximately three per cent increase in the labor force. On the other hand, the decrease in the off-peak traffic is attributable in part to the availability and convenience of automobile service; to the rapid post-war growth of suburban shopping areas with good and inexpensive parking facilities; and partly to the continuing population shift (partly industry-induced) to the suburban areas. Thus, it would appear that the cumulative effects of events entirely beyond the control of local transit have slowly but effectively reduced the demand for off-peak hour mass transportation. In the absence of reliable data, a precise measure of the demand elasticity for off-peak service is not obtainable. The Chicago Transit Authority experimented with fare reductions during off-peak hours during November of 1953. The result was that the Authority incurred losses in so doing. This result points to the inelasticity of demand for off-peak service under the conditions of the experiment conducted by the Chicago Transit Authority. As far as peak-hour service is concerned, we have seen that factors other than fare increases have in combination tended to reduce the total demand each year. We have seen, too, that local mass

transportation has experienced the type of demand facing inferior goods. We suggest that, given expanding facilities for automobiles and the continuing de-centralization of industry and commerce, so long as mass transit does not offer a qualitatively better service, the demand for such service will continue to decline relatively if not absolutely.

APPENDIX II

THE CONTRIBUTION OF MOTOR VEHICLE USERS TO THE COST OF HIGHWAYS AND STREETS IN THE CITY OF CHICAGO

It is often stated in the literature on urban transportation that the financial problems of local transit companies stem directly from the enormous growth in the number and use of motor vehicles in metropolitan areas. Normally, statements of this sort can be rationalized as merely reflecting an exercise in consumer voting for a substitute service which yields greater satisfaction. It is further argued that this substitution is not only made possible, but accelerated by heavy subsidization of motor vehicle users. The subsidy has the effect of making the price of the substitute service (private automobiles) less expensive than it would otherwise be. Consumers, therefore, in keeping with accepted theory, demand more of the substitute and less of the alternative service (mass transit). On the basis of this argument, it is not surprising that there is a growing belief in local transit circles that there is need for public action to restore equal opportunities for competition between the two competing forms of service.

In the case of the Chicago transportation problem, the idea that motorists have an unfair competitive advantage due to a veiled but substantial subsidy from the municipal government was given added

impetus by W. W. Schroeder in his Metropolitan Transit Research Study.[1] This idea might well have important influence on the decision making of the public officials who are charged with the responsibility of ensuring efficient transportation services for the city. Decisions could be made for taxing motor vehicle use more heavily than at present, for imposing a general property tax to raise the level of public assistance to local transit[2] and, conceivably, to extend such assistance to all modes of transportation. As these decisions are clearly within the limits of possibility, it is necessary to re-examine the factual basis for the idea that motor vehicle users are subsidized. The scope of the re-examination will be limited to the year 1954 partly because this year was used by those who propose that urban mass transit has legitimate claims on public funds, and partly because the data problem is less acute.

In the Metropolitan Research Study mentioned above, it was contended that in 1954 motorists were subsidized at an annual rate of $84.00 per vehicle. This represents an overall annual rate of subsidization of approximately $74 million, which is equivalent to 18 per cent of that year's municipal budget. A subsidy of such large proportion to a single sector of the community naturally raises questions concerning the economic allocation of the municipality's financial resources. It also raises fundamental questions of welfare

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[1] Werner W. Schroeder, Metropolitan Transit Research Study, Chicago, 1956.

[2] Local transit in Chicago is exempt from certain taxes.

touching upon the redistribution of personal income and wealth to the advantage of motor vehicle users. Effort will be directed here only to ascertain whether there was, in fact, a subsidy.

Expenditure and Compulsory Payments Defined

There is one basic method of ascertaining whether there was a subsidy or not; that is, to set off the compulsory payments motorists had to make against the governmental expenditures for maintaining, operating, and expanding the urban highway and street facilities. There are two methods of applying this basic procedure, each of which follows from particular definitions of expenditure on urban highways and streets. In the first method, expenditure is defined as the expected outlay (i.e., annual appropriations) of the municipal and intra-city governments for highways and streets. The corresponding definition of compulsory payments by motor vehicle users is the sum of those payments which is specifically allotted to the treasury of the municipal government. However, in the second method expenditure is defined as the sum of the actual expenditure by all the governments that participate in providing the relevant facilities; the corresponding definition of compulsory payments being the sum of all payments motorists are required to make to the various governments concerned.

Applied to the City of Chicago, the first method fails to take into account the fact that expenditure on urban street and highway facilities is not the sole responsibility of the municipal and intra-city (i.e., the Chicago Park District) governments, but that there

is a multiple sharing of responsibility between the municipality, the Park District, the County, the State, and the Federal Government. An equally important defect of this method is the implicit assumption that anticipated annual expenditure necessarily equates actual annual expenditure.[1] As will be shown below, the facts do not justify the assumption. A third defect is the rather narrow view taken of the payments which motorists are required to make. (For example, motorists are legally required to pay eight cents as taxes on every gallon of gasoline purchased.) Just as several governments jointly participate in the provision of urban street facilities, so also several governments are ultimate recipients of certain specified proportions of the compulsory payments made by urban motorists. The first method shows no concern for this obvious fact, but limits itself only to account for the proportion of total payments that ultimately revert to the municipal government.

The second method suffers from none of these defects as it recognizes that there exists a joint sharing of responsibility for urban highways, and that there may be inequalities between anticipated and actual expenditures. More fundamentally, it recognizes that motorists make a decision to own and use their automobiles not on the basis of how much will have to be paid to any one government, but on the total amounts to be paid to all.

On these grounds, we believe that the second method will give

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[1] When a project is completed, if there is an unexpended balance of appropriated funds, it does not remain in the "pipe line," but is released for reappropriation.

a more realistic picture of the annual expenditure for Chicago's streets and the compulsory payments made by the motor vehicle users than the first. This, incidentally, is the point of departure from the Metropolitan Transit Research Study which tackled this problem according to the propositions of the first method.

Payments by Motor Vehicle Users

It has been argued above, that it is essential to a correct analysis to account for all payments made by motor vehicle users; that it is wrong, both in principle and practice, to believe that the motorists' contribution to the cost of highways is truly represented by the shares of payments that go to the municipal government.

In 1954 compulsory motor vehicle user payments took the form of (a) an eight cent (8¢) tax per gallon of motor fuel purchased. Five cents (5¢) of this tax were collected on behalf of the state and three cents (3¢) on behalf of the Federal Government; (b) fees for registration of motor vehicles; (c) fees for motor vehicle operators' licenses; (d) wheel taxes, otherwise known as "windshield stickers;" (e) fees for curb-side and off-street parking; and (f) fines and penalties for violations of traffic rules and regulations.

The category of payments (a) to (f) does not really exhaust the list of inescapable payments. Theoretically, the listing should be expanded to include manufacturers' excise taxes, and possibly sales taxes on lubricating oils, etc. In point of principle, manufacturers' excise tax has a strong claim to be included since it is essentially, unlike the sales tax, a discriminatory tax. That is, by adding to total cost

of automobiles it discriminates against that good in favor of others. However, they have been excluded on practical grounds involving difficulties of identification. It should be recognized that their exclusion will result in an understatement of the total compulsory payments.

The immediate problem is to discover how much of the identifiable payments were made by motorists in Chicago. Admittedly, this is a difficult task as there is no published data for some of the items listed above. For example, in the case of motor fuel taxes, the payments made in Chicago will be estimated. The estimate will be based on the observed proportion of registered vehicles between Chicago and the state as a whole.[1] Such an estimate might conceivably underestimate the amount of tax insofar as suburban and other out-of-town motorists make purchases when travelling within the city. However, it is assumed that such purchases are counter-balanced by purchases made by Chicago motorists when travelling outside the city limits.

Table I illustrates the procedure followed with regard to estimating the contribution of Chicago motorists to the total motor fuel taxes collected in the state.

Table I shows that the net payments of motor fuel taxes to the

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[1] On the assumption that the annual average number of miles travelled per vehicle is 10,500 miles (i.e., 500 miles greater than the national average), and that gasoline consumption is at an average rate of one gallon per 12 miles travelled, then, at a rate of eight cents tax per gallon, the 869,518 motor vehicles in Chicago would have paid $60,866,260 in motor fuel taxes. This result, which is comparatively close to the result obtained by our use of the registration ratio, make the registration ratio appear to be a reasonably good estimator.

TABLE I

SHOWING MOTOR FUEL TAXES FROM CHICAGO, 1954

ITEMS	PAYMENTS
Gross taxes collected[a] by state at 5¢ per gallon . .	$134,001,000
Gross payments by Chicago on basis of 30.363 per cent[b] of registration	40,686,724
Less 2 per cent retained by distributors	813,734
Less 30.363 per cent of administrative costs	394,361
Less 30.363 per cent of refunds excluding refunds to agriculture[c]	1,164,708
Net payments by Chicago at 5¢ per gallon	38,313,921
Net payments at 8¢ per gallon[d]	62,225,955

[a]Source: U.S. Department of Commerce, Bureau of Public Roads, Highway Statistics, 1954, p. 10. A higher figure, $139,346,849, is given in the unpublished Table MFC, showing motor fuel tax collected for highway purposes, 1930-1954 inclusive, prepared by the Bureau of Research and Planning, a department of the State of Illinois Division of Highways.

[b]Represents ratio of motor vehicle registration in Chicago to that of state. See State of Illinois, Secretary of State, unpublished Table VRC.

[c]It is reasonable to assume that fuel for agricultural purposes is not normally purchased in the city.

[d]On the basis of gross collection by state, 2.680 billion gallons of fuel was purchased. Actually, the Department of Commerce gives a higher figure, but allowance has to be made for shrinkage and evaporation. At 3¢ per gallon, the gross federal tax from Chicago is $24,412,034. Allowance has to be made for the fact that the federal government does not allow distributors to retain 2% of collections. Nor is it a party to special exemptions granted by the state, and finally, its administrative expenses for this particular item are less than those of the state. Deductions are estimated at $0.5 million to defray administrative expenses and refunds.

state is estimated to be $38,313,921 after deducting proportionate share of the cost of administration, refunds, and distributors' fees. This estimate represents the taxes paid at a rate of five cents per gallon. The table also shows that the overall net payments at a rate of eight cents per gallon, after making certain allowances for differences in the deductions from the three cents portion of the tax, turn out to be $62,225,955.[1]

A procedure similar to that shown in Table I was followed in estimating the net payments for licenses and fees paid to the state. The net Chicago payments for these items turned out to be $19,738,273.

The actual and estimate compulsory payments by Chicago motorists are shown in summary form in Table II.

Table II shows that the payments made by motor vehicle users in 1954 totalled $105,319,784. The major component of the table -- motor fuel tax payments -- was estimated on the basis of data published by the United States Department of Commerce. If the data of the unpublished Table MFC[2] were used, motor fuel tax payments would be $67,273,987, and item 6 of Table II would read, "Estimated Total $110,367,816." Similarly, if we were to use the Norman findings,[3] the

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[1] It has been brought to our attention by Mr. C. B. North, Assistant Comptroller of the Chicago Transit Authority, that Mr. E. Norman of the Engineering Board of Review conducted a survey which showed that 40.25 per cent of total state motor fuel taxes were derived from Chicago in 1954. If the findings of the unpublished survey are correct, Chicago paid $82,552,193 instead of our estimated $62,225,955.

[2] See footnote (b) of Table I, p. 7. Note: The data of Table MFC was compiled from records of the Department of Revenue, the Department of Finance and the Bureau of Administrative Service of the State of Illinois.

[3] See footnote 1 above.

TABLE II

SUMMARY OF COMPULSORY PAYMENTS BY CHICAGO MOTORISTS

ITEMS	PAYMENTS
1. Motor fuel taxes	$ 62,225,955
2. Licenses and fees[a]	19,378,273
3. Wheel taxes	17,047,757
4. Parking[b]	3,719,377
5. Miscellaneous[b]	2,948,422
ESTIMATED TOTAL	$ 105,319,784

[a] Source: State of Illinois, Division of Highways, 37th Annual Report, 1954.

[b] Source: City of Chicago, Report of the Comptroller. The "Miscellaneous" item consists of fines and penalties, (i.e., court fines, impounded automobiles, etc.) franchises, etc. Parking payments are payments both to the City of Chicago and the Park District; rental of parking property is also included as an offset for expenses involved in securing said property. The payments for bus and taxi concessions were not included as they are not identifiable, though they are said to be of the order of $100,000.

estimated total of Table II would have risen to $126,006,022.

In tabular form these results can be labelled as low, high, and medium estimated totals. We shall so refer to them in the future. (See Table III.)

TABLE III

ESTIMATES OF PAYMENTS BY CHICAGO MOTORISTS

Low (Department of Commerce Data)	$105,319,784
Medium (State of Illinois Data)	$110,367,816
High (Norman Survey)	$126,006,022

Expenditure

We have already defined expenditure in such a way that only actual expenditure incurred by the several governments is the appropriate measure of cost. However, the whole problem of what is to be regarded as a legitimate highway expenditure is still outstanding. For example, the Department of City Planning concerns itself not only with the planning of public buildings, re-development projects, etc., but must necessarily be vitally interested in the adequacy of streets if its other projects are to be successful. How much then of the expenditure incurred of the Department of City Planning (City Planning Commission) should be assigned as a cost to motorists?

The problem is multiplied for many of the departments and bureaus whose function is primarily unrelated to streets and highways, but who, nevertheless, perform some essential tasks in that field. A solution to this problem was found through the assistance of the Chicago Transit

Authority who put at our disposal data concerning the percentage of departmental appropriations that could be legitimately assigned as a cost to motorists.

With this difficulty out of the way, we can proceed to derive the expenditures of the Municipal Government and the Park District. A detailed account of these expenditures are set out in Table IV.

The idea of segregating the ordinary expenditures from the highway capital expenditures seems attractive at first sight. They do not add greatly to our analysis since we are interested primarily in the total expenditures. However, they are separated where possible in the table, not so much for expository significance, but merely in deference to tradition. The important result is that the City of Chicago and the Park District spent $79,161,127 as their share of the total cost of highways and streets in that year. It bears out the point that the actual expenditure in a given period does not necessarily equate the anticipated expenditure for the same period. A summary of Table IV, which is too involved for easy reference, is presented in Table V.

It remains for us to show the amounts spent by the other governments. But before this is done, it should be pointed out that the Federal Government does not make direct highway expenditures in the city. The procedure is that federal-aid urban funds are disbursed by the state. Federal-aid funds obligated, for example, by expenditures of the City and County Highway Departments are paid to both through the state. These disbursements are included in the data (see below) submitted by the state's Division of Highways.

TABLE IV - SHOWING THE TOTAL APPROPRIATIONS, THE AMOUNTS APPLICABLE TO MVU (MOTOR VEHICLE USERS) AND THE AMOUNTS EXPENDED BY THE MUNICIPAL GOVERNMENT AND THE PARK DISTRICT IN 1954[1]

	Percentage Applicable to MVU[a] (1)	Total Appropriation (2)	Applicable to Ordinary Expenses (3)	MVU[a] Capital Expenses (4)	Amount of Total Appropriation Expended (5)	Applicable to Ordinary Expenses (6)	MVU[a] Capital Expenses (7)
CORPORATE PURPOSES FUND							
Mayor's Office	5	$ 98,128	$ 4,906		$ 81,838	$ 4,091	
of Inquiry and Information	5						
Budgeting Division	5						
City Council	5	585,816	29,290		574,763	28,738	
Legislative Conference	5	5					
Committee on Finance	10	154,816	15,842		152,481	15,248	
on Committees and Rules	1	16,000	160		10,385	104	
Forestry and Recreation	67	8,500	5,667		7,500	5,025	
Harbours, Wharves, Bridges	75	10,300	7,725		10,350	7,763	
Judiciary & State Legislation	10	4,960	496		4,413	441	
License	25	9,300	2,325		9,090	2,273	
Local Industries, Streets & Alleys	50	12,000	6,000		5,300	2,650	
Planning and Housing	10	33,800	3,380		29,019	2,902	
Police, Fire, Civil Service							
Schools &. Mun. Institutions	5	8,100	405		8,000	400	
Utilities	1	45,000	450		32,676	327	
Local Transportation	5	4,800	240		4,800	240	
Board of Examiners	10	76,984	7,698		72,713	7,271	
Community Conservation Board	1	128,112	1,281		65,231	652	
Commission on Human Relations	1	64,140	641		61,577	616	
Neighborhood Redevelopment	1	1,000	10				
Public Vehicle License Commission	100	101,338	101,338		98,137	98,137	
Zoning Board of Appeals	2	61,952	1,239		57,703	1,154	
Department of City Planning	33	205,046	68,349		202,871	66,947	
City Clerk (See Vehicle Tax Fund)							
Department of Investigation	5	22,358	1,118		21,484	1,074	

[1] See footnotes at end of table.

TABLE IV - (Continued)

	Percentage Applicable to MVU (1)	Total Appropriation (2)	Applicable to Ordinary Expenses (3)	MVU Capital Expenses (4)	Amount of Total Appropriation Expended (5)	Applicable to Ordinary Expenses (6)	MVU Capital Expenses (7)
City Comptroller's Office	3	$ 1,003,662	$ 30,110		$ 910,670	$ 27,320	
Department of Finance	1	1,177,850	11,779		1,110,038	11,178	
Loss & Cost in Collection of Taxes	2.8	5,338,235	147,298		4,500,000	124,169	
City Treasurer	5	173,836	8,692		170,922	8,546	
City Collector (See Vehicle Tax Fund)							
Department of Law	33	1,083,456	361,151		1,068,205	352,508	
Civil Service Commission	5	325,248	16,262		319,672	15,984	
Department of Purchases	2	1,207,856	24,156		979,097	19,582	
Department of Medical Examination	5	29,986	1,499		28,980	1,449	
Chief Justice of Municipal Court	9	1,356,041	122,043		1,235,612	111,205	
Clerk of Municipal Court	47.4	2,205,003	1,045,171		2,077,168	984,578	
Bailiff of Municipal Court	47.4	1,537,605	728,825		1,523,634	722,203	
Department of Police (See Vehicle Tax Fund)							
Department of Weights and Measures	22.7	254,200	57,703		246,019	55,846	
Dept. of Streets & Sanitation (See VTF)							
Board of Local Improvements	32	220,284	70,491		205,079	65,625	
Dept. of Public Works-Commissioner's Office	50	119,944	59,972		86,939	43,470	
Bureau of Engineering - General	50	124,000	62,000		115,995	57,998	
Bridge Maintenance	80	343,691	274,952		324,859	259,887	
Maps and Plats	10	99,710	9,971		94,130	9,413	
Rivers & Harbors	63	1,841,810	1,160,340		1,801,540	1,134,970	
Architecture and Buildings	10	3,499,419	349,942		3,323,534	332,353	
FORESTRY FUND							
Dept. of Finance - General	67	49,500	33,165		48,050	32,194	
Dept. of Public Works-Bur. of Parks	67	2,804,206	1,869,470		2,585,639	1,732,378	
Loss & Cost in Collection of Taxes	67	194,531	130,335			19,453	

TABLE IV - (Continued)

	Percentage Applicable to MVU (1)	Total Appropriation (2)	Applicable to Ordinary Expenses (3)	MVU Capital Expenses (4)	Amount of Total Appropriation Expended (5)	Applicable to Ordinary Expenses (6)	MVU Capital Expenses (7)
JUDGEMENT TAX FUND							
For Payment of Principal and Interest on Judgements	20	$ 1,402,234	$ 28,045		$ 946,963	$ 18,939	
TRANSIT FUND							
Committee on Local Transit	5	127,022	6,351		111,019	5,551	
Department of Law	41	50,000	20,500		33,193	13,609	
PARKING REVENUE FUND							
Bureau of Parking							
Operating Meters & Lots & Admin.	100	893,831	893,831		656,614	656,614	
Int. on Parking Revenue Bonds	100	1,031,250	1,031,250		1,031,250	1,031,250	
Salaries of Parking Police	100	642,000	642,000		604,870	604,870	
Bureau of Engineering	100	44,214	44,214		10,000	10,000	
Construction Fund	100	12,739,000		$12,739,000	11,095,758		$11,095,758
BOND FUNDS							
103rd Street Improvement	100	22,646		22,646			
Kimball Avenue	100	12,863		12,863			
N. State Street - Widening Bonds	100	211,599		211,599			
22nd and Indiana	100	15,647		15,647			
Robey Street	100	195,159		195,159			
Electric Street Lighting '51	67	362,056		242,573	360,640		241,628
Electric Street Lighting '53	67	9,547,000		6,396,490	4,446,627		2,979,240
City Building Bonds	17.3	4,000,000		692,000	2,161,379		385,059

TABLE IV - (Continued)

	Percentage Applicable to MVU (1)	Total Appropriation (2)	Applicable to Ordinary Expenses (3)	MVU Capital Expenses (4)	Amount of Total Appropriation Expended (5)	[b] Applicable to Ordinary Expenses (6)	[b] MVU Capital Expenses (7)
N. S. Street Bridge '30	80	$ 98,642		$ 78,914	$ 20,647		$ 16,518
Bridge '51	80	7,512,000		6,009,600	1,135,416		908,333
Bridge '53	80	2,010,000		1,608,000	154,199		123,359
Super Highway '47	100	10,867,400		10,867,400	6,374,250		6,374,250
Super Highway '52	100	1,000,000		1,000,000	1,073		1,073
Sewer '47	20	13,731,000		2,746,200	5,618,255		1,123,651
VEHICLE TAX FUND							
Committee on Traffic & Public Safety	100	$ 90,500	$ 90,500			$ 86,044	
Chicago Street Traffic Commission	100	31,452	31,452			26,251	
City Clerk Issuing Vehicle Licenses	100	285,296	285,296			273,561	
City Collector-To Process License Appl.	100	147,844	147,844			96,553	
Dept. of Finance-Salaries Traffic Police	100	5,722,500	5,722,500			5,722,500	
Claims under Workmen's Comps. Act.	100	25,000	25,000			12,571	
Other Expenses re Vehicles	100	53,000	53,000			32,174	
Dept. of Sts. & Sanitation-Comm. Office	100	158,538	158,538			158,000	
Bureau of Streets - Supt.'s Office	100	18,116	18,116			17,915	
Engineering and Inspection	100	349,036	349,036			339,468	
Pavement & Maintenance	100	5,145,272	5,145,272			5,131,326	
Bureau of Sanitation-Pavement Main.	100	1,849,000	1,849,000			1,849,000	
Snow Removal	100	394,000	350,000	44,000		350,000	42,377
Bureau of Electricity - Operation and Maintenance of Traffic Signals	100	716,405	716,405			682,185	
Bureau of Street Traffic	100	1,901,899	1,901,899			1,698,909	
Dept. of Public Works - Comm. Office	100	9,000	9,000			2,631	
Bureau of Engineering	100	690,000	690,000			509,005	
Bureau of Architecture & Bldgs.	100	36,000	36,000			33,397	
Bureau of Sewers	100	354,600	354,600			331,618	
Extraordinary from VTF	100	165,000	165,000			142,471	

TABLE IV - (Continued)

		Percentage Applicable to MVU (1)	Total Appropriation (2)	Applicable to Ordinary Expenses (3)	MVU Capital Expenses (4)	Amount of Total Appropriation Expended (5)	Applicable To Ordinary Expenses (6)	MVU Capital Expenses (7)
MOTOR FUEL TAX FUND								
Bureau of Streets		100	$ 5,817,460	$ 5,817,460			$ 4,255,368	
Highway Lighting		100	4,273,491	4,273,491			2,317,827	
Traffic Signals		100	967,076	967,076			527,045	
Bureau of Engineering		100	7,657,669	7,657,669			3,817,820	
Bridges and Viaducts		100	3,376,483	3,376,483			1,661,761	
Bureau of Sewers		100	1,514,062	1,514,062			591,571	
BOND REDEMPTION & INTEREST FUND								
Bridge	1951	80	600,000		$ 480,000			$ 480,000
Electric Street Lighting	1947	67	300,000		201,000			201,000
Electric Street Lighting	1951	67	600,000		402,000			402,000
Police and Fire Dept. Building	1945	11	100,000		11,000			11,000
Police and Fire Dept. Building	1951	11	150,000		16,500			16,500
Sewer	1947	20	4,000,000		800,000			800,000
Street and Alley Reconstruction	1947	100	500,000		500,000			500,000
Super Highway	1947	100	2,000,000		2,000,000			2,000,000
Super Highway	1952	100	1,045,000		1,045,000			1,045,000
Interest on Bonds		38	5,554,937	2,110,876			2,110,876	
Loss and Cost in Collecting Taxes		38	2,381,104		904,820			904,820
ANNUITY & BENEFIT FUNDS								
Policemen		16.5	4,400,000	726,000		$ 4,327,773	714,083	
Municipal Employees		5	7,360,000	368,000		7,188,220	359,411	
Laborers and Retirement Board Employees		5	2,871,000	143,550		2,783,191	139,160	

TABLE IV - (Continued)

	Percentage Applicable to MVU (1)	Total Appropriation (2)	Applicable to Ordinary Expenses (3)	MVU Capital Expenses (4)	Amount of Total Appropriation Expended (5)	Applicable to Ordinary Expenses (6)	MVU Capital Expenses (7)
Municipal Court & Law Dept. Employees	40	$ 394,000	$ 15,760		$ 381,408	$ 152,563	
WATER FUND							
Dept. of Water & Sewers-Comm. Office	5	99,556	4,978		79,209	3,960	
Bureau of Sewers	20	4,084,007		$ 816,801	3,084,007	616,801	
Bureau of Engineering	5	383,900		19,195	279,199	13,960	
Construction Division	5	197,000		9,850	158,460	7,923	
SUB-TOTAL		$160,942,497	$54,258,941	$50,088,262	$133,024,704	$43,494,903	$29,651,566
CHICAGO PARK DISTRICT[c]							
Division of Engineering							
Design & Contract Section	7	$ 2,933,812	$ 214,400		$ 2,933,812	$ 214,400	
Electrical Section	5	1,415,105	635,680		1,415,105	635,680	
Mechanical Section	12	1,926,480	235,400		1,926,480	235,400	
Repair Section	24	3,033,068	733,684		3,033,065	733,684	
Traffic Section	100	468,398	468,398		468,398	468,398	
Landscape Section	19	3,687,093	681,797		3,687,093	681,797	
Records & Estimates Section	16	115,740	17,928		115,740	17,928	
Administration	18	533,461	93,180		533,461	93,180	
Division of Police	64	4,196,728	2,694,200		4,196,728	2,694,200	
General Administration	7	1,364,943	91,271		1,364,943	91,271	
Parking Lot Attendants	100	148,720	148,720		148,720	148,720	
TOTAL OF EXPENDITURE APPLICABLE TO MVU						$49,509,561	$29,651,566

GRAND TOTAL OF EXPENDITURE APPLICABLE MVU - $79,161,127

TABLE IV - (Continued)

[a] MVU appropriation for motor vehicle users.

[b] All expenditure is applicable to motor vehicle users.

[c] Sources: The Annual Appropriation Ordinance of the City of Chicago for the year 1954.

The Annual Appropriation Ordinance of the Chicago Park District for the year 1954.

Chicago Park District, Annual Report of the Comptroller, 1954.

City of Chicago, Report of the Comptroller, 1954.

W. W. Schroeder, Metropolitan Transit Research Study.

TABLE V

HIGHWAY EXPENDITURE FROM VARIOUS FUNDS

FUND	HIGHWAY EXPENDITURE
Corporate Purpose	$ 4,584,337
Forestry	1,784,025
Judgment Tax	18,939
Transit	19,160
Parking Revenue	13,397,392
Bond	12,153,111
Vehicle Tax	17,537,956
Motor Fuel Tax	13,171,392
Bond Redemption and Interest	8,471,196
Annuity and Benefit	1,365,217
Water	642,644
Sub Total	73,146,469
Chicago Park District	6,014,658
TOTAL	$79,161,127

The highway departments of both the county and the state, at our request, assembled expenditure data for the year 1954 and passed them on to us. As seen in Table VI, the data supplied by the state includes actual expenditures for construction of expressway and non-expressway systems, operation, and maintenance, as well as administration. The administrative expenditures do not include the cost of administering taxes, licenses, and fees levied for the ownership and use of motor vehicles. These expenditures were already deducted (see Table I).[1] A breakdown of expenditure data, similar to that submitted by the Division of Highways, was obtained from the County Highway Department. This showed that in the year in question, Cook County expended $9,746,000 on highways and streets in the City of Chicago.

To sum up the expenditures we have discussed so far, it is observed

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[1] It is debatable whether the full amount spent for expressways should be regarded as a cost to motorists when such an amount includes expenditure for substantial areas of right-of-way that will be used exclusively by other forms of transportation. It is contended that the total expenditure would be less were not the extra right-of-way procured. This contention is open to the rebuttal that rights-of-way, like that of Congress Street, could only be purchased as a "package." If such is the case, then some form of returns, imputed or actual, should accrue to this investment made in the first place on account of motor vehicle use, but ultimately used for the benefit of another form of transportation. No attempt has been made in this study either to impute returns from this over-investment in land or to deduct the extra expenditure incurred as a cost to motor vehicle users. On the contrary, full account is taken of the capital expenditures including expenditures for the right-of-way. This means that the cost to motorists has been overstated by this procedure to a degree not now determinable. But more fundamentally, it means that capital out-lay has been amortized in a one year period. Theoretically, this should not be, for in practice capital cost is the only real money expense to the government in any given year. This argument applies equally to our inclusion both of expenditure from bond funds and the cost of those funds. Hence, there is no doubt that our expenditures have been overstated.

TABLE VI

EXPENDITURES BY DIVISION OF HIGHWAYS IN CITY OF CHICAGO FOR CONSTRUCTION, MAINTENANCE, AND ADMINISTRATIVE EXPENSES

ITEMS	EXPENDITURE
Construction of Expressways	$19,957,625
Construction of Other Systems	977,691
State Patrol Maintenance and Operation, Including Traffic Control, City Street, and Park District Maintenance	769,987
Administrative Expenses	2,005,603
TOTAL	$23,710,907

Source: State of Illinois, Division of Highways, Bureau of Planning and Research.

that the several governments sharing responsibility for operating, improving, and expanding the highway and street facilities of the City of Chicago, spent in 1954 the sum of $112,618,034 in fulfillment of their responsibilities (see Table VII).

TABLE VII

TOTAL PUBLIC EXPENDITURE

GOVERNMENT	HIGHWAY EXPENDITURE
City of Chicago	$ 73,146,469
Chicago Park District	6,014,658
Cook County	9,746,000
State of Illinois	23,710,907
TOTAL	$112,618,034

Payments and Expenditures Compared

We had estimated a low, medium, and high sum of payments by Chicago motor vehicle users. A comparison of these estimates shows that our low and medium estimates of payments are exceeded by estimates of expenditure in the amounts of $7,298,250 and $2,250,218, respectively. On the other hand, our high estimates of payments exceed total expenditure by $13,387,988. The excess of expenditure over-payments can be regarded as a subsidy to the motorist, and the excess of payments over expenditure as a subsidy by the motorist.

On the basis of the 869,518 vehicles registered in 1954, the subsidy that emerged from the $7,298,250 and $2,250,218 excess of expenditure over-payments averaged $8.39 and $2.59 per vehicle, respectively.

On the other hand the $13,387,988 excess of payments indicates that on an average that motor vehicle users paid $15.40 per vehicle more than was necessary for maintaining, operating, and improving the facilities they used in that year.

Frankly, we believe that the true situation lies somewhere between the extremes of a subsidy of $8.39 and an over-payment of $15.40. Although the rate of subsidization indicated by our low and medium estimates of motor vehicle user payments is relatively low, it must be borne in mind that the estimate of a major part -- motor fuel taxes -- was based on the ratio of registration between Chicago and the State of Illinois; that this procedure was on the implicit assumption that the average gasoline consumption per vehicle in the City of Chicago is the same as that in the rest of the state. The assumption, however, ignored the fact that the inevitable stop and go driving in urban Chicago causes more gasoline to be consumed per vehicle than is the case when there are relatively fewer stops, as in the rest of the state. Consequently, the procedure could lead to under estimation of motor fuel taxes, and hence of total motor vehicle user payments. Against this contingency, however, is our high estimates of payments which yields a result consistent with Wilfred Owen's[1] statement that nationally, urban traffic contributes more highway user tax revenue than is spent for city streets from all sources. However, by taking account of all the legitimate obligations of motor vehicle users, our analysis has shown that even if there were

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[1] Wilfred Owen, The Metropolitan Transportation Problem; The Brookings Institution, Washington, D. C., 1956, p. 177.

a subsidy, it would have ranged from $2.59 to $8.39 per vehicle in 1954; or that the rate of subsidization, at the outside, ranged from one-half of 1 per cent to 1.74 per cent of the municipal budget. A subsidy of this scale could hardly have influenced the demand pattern for automobiles and transit to a measurable extent.