EXPLORING BENEFIT-BASED FINANCE FOR LOCAL GOVERNMENT SERVICES: MUST USER CHARGES HARM THE DISADVANTAGED?

Kevin McCarthy, Kevin Neels, C. Peter Rydell, James P. Stucker; edited by Anthony Pascal

July 1984

N-2108-HHS

Prepared for

The U.S. Department of Health and Human Services
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A RAND NOTE

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The U.S. Department of Health and Human Services
This Note presents a discussion of the basic concept of benefit-based finance, a review of current practice, and ideas for innovative approaches in three exemplary programs. It is intended for city and county officials searching for more effective ways to finance public programs in an era of shrinking fiscal resources. It should also interest managers of local programs established to help certain target groups such as the elderly, children, the poor, and the disabled, since it illustrates methods for protecting such groups against new fiscal burdens. Federal officials engaged in human service programs and scholars of local finance and local program delivery should also find much of interest.

Other Rand publications related to the current effort include:


SUMMARY

THE GROWING PROMINENCE OF BENEFICIARY CHARGES IN LOCAL GOVERNMENT

Benefit-based charges--user fees, licenses and permits, special assessments, and the like--have grown much faster than other forms of local government revenues over the past decade. Proponents point to superiority of consumer charges in allocating burdens to true beneficiaries, in fostering prudent use of public resources, and in promoting businesslike management of public agencies. Beneficiary charges find their most appropriate role in the monopoly services provided by government (e.g., water and sewers) and their least applicability in public good services (e.g., police and fire). Services that have both public and private good components, sometimes called merit goods (e.g., parks, libraries, health) warrant a mixture of tax and charge support.

INNOVATIONS IN BENEFIT-BASED FINANCE

Innovative jurisdictions queried in our survey have adopted varying policies with respect to beneficiary charges. Counties and cities tend to pursue the strategy most vigorously with respect to sewers, street maintenance, solid waste collection, and inspections. The norm is full cost recovery, with some variation in the treatment of capital. For such services as recreation and paramedics, charging to cover operating costs is common, but exactions are often set with an eye to the price of private sector alternatives. Police and fire services rely only negligibly on charges, while parks and libraries must overcome political resistance to heavy dependence on consumer charges. Seldom do public or merit good services recover as much as 10 percent of costs through consumer charges.

Survey results show that beneficiary charges are of considerable interest to local jurisdictions, most of whom plan to pursue this source of revenue more actively in the future. The tighter the local budget, the more aggressive the pursuit. Homogeneous, middle income, middle
size communities make the most use of benefit-based finance. A sophisticated cost accounting system is a prerequisite.

MAKING BENEFIT-BASED FINANCE MORE EQUITABLE

Although beneficiary charge systems offer more horizontal equity—those who benefit, pay—they may worsen the position of the disadvantaged and thus reduce vertical equity. The reduction is limited to the extent that (1) public good services and those with redistributive intentions enjoy more tax support once private and merit good services become subject to charge, and (2) deliberate equity protections are built into charge systems. Lifeline rates, target group discounts, rebates in low income neighborhoods and deferral provisions for special assessments are approaches designed to alleviate the regressive consequences of benefit-based finance. Examples of many of these protections were found among survey respondents. Supervoucher systems, which are more comprehensive than the foregoing but not currently in use, are lump sum grants to eligible households for payment of public service charges and assessments. They could take the form of scrip or credit cards. Jurisdictions cannot avoid difficult political choices involving which groups are to be eligible for equity protections (and how to certify them) and the generosity of the taxpayer subsidy that will finance the protections.

CASE STUDIES IN EQUITABLE BENEFICIARY CHARGING

Three case studies examine the practical applications of equity-adjusted benefit-based finance to specific public service areas using data from Los Angeles County, California, and Saint Paul, Minnesota, supplemented by information from other jurisdictions.

CIVIL COURTS

Shrinking tax revenues have led civil courts to increased reliance on user fees. Filing fees, covering court costs for pretrial processing of cases, are noncontroversial because they are small (less than $100 per litigant). Trial fees, covering court costs for conducting trials, are controversial because they are large (averaging about $1350 per litigant who goes to trial). In Los Angeles and elsewhere, filing fees
have been accepted as a revenue source, but trial fees (beyond small charges for juries) are still being debated.

Instituting fees to cover the full cost of civil trials would relieve taxpayer burdens in two ways in a jurisdiction such as Los Angeles County: (1) With fees set to recover costs and split evenly between plaintiffs and defendants, new revenues would total something like $9.2 million per year, which would cover about a fourth of the Superior Court budget; (2) the number of civil trials held would decline by an estimated 1100, which is 25 percent of the total 1983 number. The decline occurs because making trials more costly encourages more out-of-court settlements. Fewer trials mean less court congestion, trial delay, and juror payments; in the long run, fewer courtrooms and judges will be needed. Imposition of fees would occasion only small changes in the overall gains and losses to plaintiffs and defendants, whether rich or poor, because so few cases come to trial anyway and trial costs are swamped by lawyers' costs. If equity protection were deliberately pursued, however, the exemption of low income plaintiffs from trial fees could increase the expected gains of this group by about 6 percent because their bargaining power would increase relative to nonexempted defendants. Such exemption from civil trial fees would cost taxpayers about $1.2 million per year in lost revenues and would raise trial frequency slightly, compared with trial fees and no exemptions.

EMERGENCY MEDICAL SERVICES

The provision of emergency medical services (EMS) differs greatly from jurisdiction to jurisdiction. Some local governments provide the service directly (usually using on-duty fire fighters), some contract with or franchise private firms to provide EMS, and some do nothing, allowing what service exists to be organized and provided by the private sector, usually by local ambulance companies. We surveyed the operations of several direct providers and interviewed three jurisdictions that have adopted a fairly new form of organization known as the "public-utility model," in which a local jurisdiction creates a foundation, trust, or other nonprofit agency to organize and supervise EMS. This agency then hires a third party (usually a private firm) to operate the service. Jurisdictions organized in this manner and those
contracting directly with private providers typically levy user charges that cover their full costs of service, billing, and administration. Jurisdictions with publicly provided EMS typically provide "free" (i.e., tax-supported) care or charge low fees.

Analysis of the EMS operations of the Los Angeles County Fire Department, which does not charge, indicates that, contrary to expectations, all categories of EMS runs are not concentrated in low income census tracts. Runs attending to traffic accidents and cardiac events (which together constituted about a third of the total) appear to be distributed nearly equally across all parts of the county. In fact, statistical analysis suggests that the runs requiring personnel with the most training, skills, and equipment (the cardiac runs) are associated with higher income patients. This implies that the provision of EMS, even without charges, may not entail as much redistribution of income as had previously been believed.

Using Los Angeles County as an example, we estimate that the imposition of user charges similar to those levied by the public-utility jurisdictions might raise some $4 million per year and might reduce the demand for EMS by as much as one-third. We also estimate that a simple protection device such as charge rebate in the lowest income quintile of census tracts could reduce estimated revenues by about 25 percent and could expand the number of runs by about 12 percent over the charge-but-no-rebate level.

TRAFFIC AND LIGHTING FUNCTIONS

Municipal traffic management and street lighting functions are rarely thought of as having much potential for revenue generation. However, a plan for conversion of the Saint Paul Traffic and Lighting Division into a Revenue Center indicates a saving of $2.4 million in general revenues, about 2.5 percent of the city's total anticipated general fund for 1984. (Revenue centers provide public good services to taxpayers out of general funds while they sell private and merit good services to users.) The old Traffic and Lighting Division would have been about 20 percent self-supporting through beneficiary charges; the new Traffic and Lighting Revenue Center, using a budget that reflects full cost of operation, would be about 67 percent self-supporting. The
important supplemental revenue sources are business income from new ventures (parking meter advertising and technical services to neighboring jurisdictions) and especially residential street lighting assessments based on the quality of service received by individual households. The assessment covers the full cost of residential street lighting but contains a deferral option to protect low income homeowners, available to all households who so choose. Deferred assessment would accumulate as a lien against property; a market interest rate would be charged.

EXTENDING EQUITABLE BENEFIT-BASED FINANCE

Jurisdictions looking to adopt the equitable benefit-based financing approach will have to take several steps to ready themselves. Exponents of the concept must develop a clear view of the revenue-raising, efficiency-enhancing and equity-maintaining effects, which may compete with one another in some situations. Also required are articulate responses to the concerns of taxpayers, public employees, advocates of the disadvantaged, and politicians. Good information systems on service costs, market conditions, incidence of consumption, and consumer characteristics are critical. Judgments must be made as to the public good content of government services and on who is eligible for how much equity protection. A program of systematic experimentation and evaluation in advance of permanent adoption will make equitable beneficiary charges work even better.
ACKNOWLEDGMENTS

The project work that led to the findings reported here was financed by a grant from the Office of Human Development Services, Office of the Assistant Secretary, U. S. Department of Health and Human Services. We wish to thank our project monitor, James V. Dolson, A.C.S.W., for his valued contributions.

This project was part of a program of studies on benefit-based finance and its equity implications. The Rand team worked intensively for a year and a half with the officials of the City of Saint Paul, Minnesota. Financial sponsors included The Ford Foundation, The Office of Policy Development and Research of The U.S. Department of Housing and Urban Development, The Saint Paul Companies, The General Mills Foundation, The Saint Paul Foundation, The F. R. Bigelow Foundation, and The Otto Bremer Foundation. We would like to thank Mayor George Latimer, Peter Hames, Susan Job, and Richard Broeker of Saint Paul; Louis Winnick of The Ford Foundation; and John Goering and Henry Felder of HUD for their advice and support.

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Other individuals contributed data, ideas, effort, or all three to the various component sections of this Note. Generally, each of the authors commented on drafts by his fellow authors. Specific contributors were:

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PART ONE:

EQUITABLE BENEFIT-BASED FINANCE:

THE CONCEPT AND CURRENT PRACTICE
I. INTRODUCTION

by

Anthony Pascal

Benefit-based finance encompasses user charges, fees and prices, and special assessments. The chief aim of this study is to increase understanding of the movement toward benefit-based methods of financing local public services. An equally important aim has been to suggest methods for ameliorating any deleterious consequences that the movement may have for dependent and disadvantaged target groups--the elderly, the handicapped, children, and the poor.

For years, public finance specialists have advocated user charges. They argue that such charges make for more efficiency and more horizontal equity; the recipients of identifiable benefits from a public service would become responsible for the support of that service. User charges work to ration demand for government services and encourage people to exercise care in using public resources. A final advantage of beneficiary charges is the positive change they promote in management outlook. As citizens become customers rather than clients, it is postulated that managers will become more directly responsive to their needs.

THE GROWTH OF BENEFICIARY-BASED FINANCE

Between 1971 and 1981, charge revenues—including fees and special assessments—of U.S. municipalities tripled while property tax revenues were up by only 120 percent; for county governments during the 1970s charge revenues rose about 250 percent while property tax revenues rose only 30 percent.¹ The trend toward beneficiary charges results from several factors. Over the last ten years local governments found their ability to raise property taxes increasingly constrained by tax limitation measures. Even where no legal limits existed leaders

¹ Figures are from various publications in the Government Finances series of the U.S. Bureau of the Census.
hesitated to raise property tax collections for fear of provoking a Proposition 13-type of reaction or of driving firms and households away into lower tax jurisdictions. Toward the end of the 1970s, the real value of intergovernmental grants received by cities and counties from Washington and state capitals began to fall sharply as well.

We conducted case studies for the project reported on in this Note in Los Angeles County, California, and in the City of Saint Paul, Minnesota. They were chosen because they represent a very large county and a medium size city and thus illuminate trends at the two levels of local government. For each we designed equitable charge systems for specific services.

Both jurisdictions have appreciably increased their dependence on beneficiary charges over recent years, as indicated on Tables 1.1 and 1.2. In Los Angeles County, for example, the overall general fund budget increased by 18 percent between 1978 and 1983, while the beneficiary charge total climbed almost 30 percent. In that jurisdiction, of course, Proposition 13 slashed the property tax take, while revenues from the state rose substantially. (The hundreds of millions in new state bail-out funds prevented beneficiary charges from achieving a much enhanced share of 1983 revenues.)

In Saint Paul, total revenues rose by 36 percent between 1977 and 1983, but beneficiary charge collections climbed twice that fast. (The rate of increase in beneficiary-based finance in Saint Paul is no doubt constrained by the city's initial heavy dependence on that form of revenue compared with that of the average U.S. city in its size class.) Property tax collections increased only by 44 percent. The city hardly gained at all in grants from county, state, and federal government over the period. By 1983 beneficiary charges accounted for over one-fourth of Saint Paul revenues, up from one-fifth six years earlier.

The two illustrative jurisdictions differed as to the functions for which beneficiary charges increased substantially. In Los Angeles County the following departments, of all those with substantial public contact, had increases in user fee revenues exceeding 75 percent over the period 1978-83: \(^2\) Agricultural Commissioner, Arboreta and Gardens,

\(^2\) For some of those listed the increase was as much as 700 percent.
Table 1.1

LOS ANGELES COUNTY GENERAL FUND REVENUES
1978-1983
(Includes franchises, fines, forfeitures and penalties)

<table>
<thead>
<tr>
<th></th>
<th>1978 Current Dollars ($000,000)</th>
<th>1983 Current Dollars ($000,000)</th>
<th>Ratio (1983 Dollars to 1973 Dollars)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Property and other local taxes</td>
<td>1280</td>
<td>994</td>
<td>0.78</td>
</tr>
<tr>
<td>Beneficiary-based total</td>
<td>358</td>
<td>463</td>
<td>1.29</td>
</tr>
<tr>
<td>Charges</td>
<td>330</td>
<td>396</td>
<td>1.20</td>
</tr>
<tr>
<td>Licenses and permits</td>
<td>28</td>
<td>67</td>
<td>2.39</td>
</tr>
<tr>
<td>Intergovernmental</td>
<td>1682</td>
<td>2464</td>
<td>1.46</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>3320</strong></td>
<td><strong>3921</strong></td>
<td><strong>1.18</strong></td>
</tr>
</tbody>
</table>

SOURCE: County budget documents.

Table 1.2

CITY OF SAINT PAUL TOTAL REVENUES,
1977-1983
(Includes homestead credit rebated from State of Minnesota)

<table>
<thead>
<tr>
<th></th>
<th>1977 Current Dollars ($000,000)</th>
<th>1983 Current Dollars ($000,000)</th>
<th>Ratio (1982 Dollars to 1977 Dollars)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Property tax</td>
<td>30.7</td>
<td>44.3</td>
<td>1.44</td>
</tr>
<tr>
<td>Beneficiary-based total</td>
<td>29.7</td>
<td>52.7</td>
<td>1.78</td>
</tr>
<tr>
<td>Charges</td>
<td>24.7</td>
<td>44.0</td>
<td>1.78</td>
</tr>
<tr>
<td>Licenses and Permits</td>
<td>1.8</td>
<td>2.8</td>
<td>1.61</td>
</tr>
<tr>
<td>Other own source</td>
<td>18.5</td>
<td>33.6</td>
<td>1.84</td>
</tr>
<tr>
<td>Intergovernmental</td>
<td>66.3</td>
<td>68.3</td>
<td>1.03</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>145.2</strong></td>
<td><strong>198.9</strong></td>
<td><strong>1.36</strong></td>
</tr>
</tbody>
</table>

SOURCE: City budget documents
County Engineer, Fire and Forestry, Marshal, Mental Health, Courts, Museums, Parks and Recreation, Probation, Regional Planning, Sheriff, and Libraries. In Saint Paul, the big increases were registered in water and sewer rates, paramedic fees, and plan checks and permits, while charges for certificates (birth, death, occupancy, etc.) and off-sale liquor licenses hardly changed at all.

APPLICABILITY OF BENEFIT-BASED FINANCE

The appropriateness of beneficiary charges varies with the type of service provided by the local government. Three basic types (and one variant) may be distinguished: public good, private good, and merit good. (Any of these may be supplied under monopoly conditions.)

Public good services provide general benefits to the public at large. The best examples are police and fire protection. Everyone benefits from crime prevention, and everyone benefits from suppression of fires that rage from one property to others. No one individual's use of the service detracts from anyone else's benefit, because everyone has an interest in preventing crime and inhibiting the spread of fires. Many other city services also share these public good characteristics: enforcement of planning and zoning regulations, traffic signs and signals, and the activities of the central executive and legislative offices.

Because these services provide general benefits to the public at large there are no identifiable consumers to whom fees may be charged. If public good services are to be provided at all, they must be supported by the general resources of the community—local taxes and intergovernmental grants.

Private good services are the polar opposite of public goods services. With private goods it is possible to identify individual consumers. Benefits from private goods accrue solely to those who consume them. The public at large has no stake in any individual's consumption of the service. Although responsibility for provisions of

---

3There are of course private benefits in fire services as well. And large nonresidential buildings, in particular, may impose extraordinary demands on fire department capacities, as the next section discusses.
private goods and services is generally left to the private market, some tend to be supplied by government.

The existence of natural monopolies provides justification for governments to produce private services. In monopolies, decreasing cost conditions make it cost-effective to concentrate provision in a single organization. But there are no market forces to regulate the behavior of such producers. To protect the public interest the monopoly is publicly regulated or publicly owned to assure that it does not exploit its position. Typical monopoly services provide water, sewers, and streets.

In other cases the government may provide private services because they are naturally complementary to public or merit services (see below). Copiers in the library and refreshment stands in parks are examples. In other instances there may be no explanation for why the city provides private services other than historical accident.

It makes sense for local governments to impose the full cost of providing private services on the people who consume them. Failure to do so would mean that in effect the government was using general revenues to subsidize particular individuals and special interests.

Merit good services constitute the final category of government services. They occupy an intermediate position between public goods and private goods and share some of the characteristics of each. They are like private goods in that they are generally consumed by identifiable individuals. They are like public goods, however, in that the benefits of the service spill over on to the community at large. One of the best examples is treatment against communicable diseases. Clearly the person inoculated is the prime beneficiary of the service. However the community as a whole also benefits from the contagion reduction this treatment brings about. Other examples include libraries, which benefit specific individuals while they educate the citizenry, and after-school recreation programs, which benefit youth while, in theory, reducing juvenile delinquency. When financing of merit goods is accomplished through beneficiary charges, a subsidy from the general fund is appropriate so as to lower the consumer charges and thereby account for the public good spillovers.
The basis for beneficiary charges. Increasingly, governments set charges to recover full cost; improvements in accounting systems make possible inclusion of capital replacement and overhead expenses. Other possible bases for government charge systems however are net revenue maximization, particularly for monopolies, and, for services at the private good end of the continuum, market pricing, in which charges are keyed to prices for close private market substitutes.

Generally then, beneficiary charge systems promise enhancement in horizontal equity.

VERTICAL EQUITY AND ITS PRESERVATION

But vertical equity—the financing of services as a function of ability to pay—is another matter. User charges and special assessments (exactions designed to recoup some of the increased value to private properties caused by public improvements) threaten to harm the dependent and the disadvantaged, who tend to be net gainers in the traditional local finance equation. If target groups received more in benefits than they paid under a tax-financed system, then linking exactions to benefits as in a benefit-based finance system would worsen their position. For several reasons, however, the potential damage may be limited.

First, beneficiary charges are rarely attached to explicitly redistributive programs such as in health, housing, and social services. Since the target groups consume these redistributive services disproportionately, the imposition of charges on other local services, without an equivalent reduction in taxes, can actually free up resources for redistribution and could conceivably make the poor better off.

Second, for true public good local services—police protection and residential fire suppression for instance—beneficiary-based financing systems cannot be installed. These services are so permeated with indivisibilities and externalities that only tax financing is feasible.

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4 For the most redistributive of all services, public assistance, the concept of charges does not apply at all.
Third, explicit protections can be built into charge systems so as to safeguard the interests of the target groups. Exemptions, group and neighborhood discounts, deferrals, and other safeguards can moderate the adverse effects on the target groups.

ORGANIZATION

Section II reports on an extensive survey of nominated jurisdictions that were identified as innovators in beneficiary-based finance. It details novel practices now being implemented across nine service areas in more than 100 city and county jurisdictions. The findings are meant to serve as a source of ideas and innovations rather than be a scorecard for or characterization of American local government.

In Section III we discuss some conceptual issues in designing devices to protect the disadvantaged against the inequities that beneficiary charges may impose on them. The section also contains several ideas for practical equity protections uncovered by the survey.

The sections of Part Two constitute reports on the application of the benefit-based finance approach to three local government functions. These exemplary treatments suggest how effective charges to consumers and others may be developed for civil courts, emergency medical services, and traffic and lighting functions. The case studies detail how costs might be assessed and therefore how charges might be set, what effects charges might have both on revenues and the demand for services, how charge systems affect low income groups, and, finally, how special provisions to protect the interests of target groups can be built into the new financing methods.

Part Three presents our conclusions. It assesses the current situation with respect to equitable benefit-based finance and explores the preconditions for extending the concept among local governments in America.
II. A SURVEY OF CURRENT BENEFICIARY CHARGE PRACTICES

by

Kevin McCarthy

This section reports the findings from a survey of beneficiary charge practices among a national sample of local jurisdictions. The survey was designed to provide information on new and creative applications of benefit based financing that local governments might consider in designing their own revenue programs. The goal of the survey was to identify and describe practices in jurisdictions that were making the most intensive use of beneficiary charges and not to portray the situation in the "typical" jurisdiction. Thus, the description of the survey results provides a review of specific practices in a select set of jurisdictions rather than a statistical analysis of a representative sample of jurisdictions.

BACKGROUND

Many local jurisdictions across the United States find themselves operating in a new and more stressful fiscal environment. Sharp reductions in federal and state grants to local governments, combined with a spreading fiscal limitations movement at the state and local level, have greatly reduced the growth of operating revenues from traditional sources for local governments. At the same time, new responsibilities for discerning and dealing with local problems and rapid price inflation have pushed local expenditures skyward.

Local governments have considered several alternatives in an effort to avoid fiscal crisis, including: cutting or reducing nonessential services, increasing operating efficiency, and pursuing new revenue sources. As a strategy for alleviating their fiscal dilemma, they are turning to some form of benefit-based financing, in which the users of local government services pay directly for those services.
Local governments have long employed a wide variety of beneficiary charges including direct service charges (e.g., sewer fees), user fees (e.g., golf green fees), fines or nuisance fees (e.g., in the library), contract service fees to other jurisdictions (e.g., for police services), and special assessments (for street improvement districts). Although such charges are not always instituted just to raise revenues (e.g., library fines), their distinctive characteristic (as opposed to taxes) is that they are tied to the receipt of a particular service or benefit.¹

Beneficiary charges are becoming more widespread for several reasons. First, they can be used to make government services self-financing because the expenditures needed to supply services are produced by the revenues the services generate. Second, they can help offset public resistance to increased local government spending because the costs of providing existing or expanded services are borne in whole or in part by the users of those services themselves rather than by taxpayers in general. In addition, those service users who would not pay for services supported by taxes—e.g., tax-exempt organizations and nonresidents—can be required to pay their fair share as beneficiaries. Third, they provide local government officials with clear market signals as to what services the public really wants and is willing to pay for and thus encourage officials to be more responsive to citizens' demands. Finally, they can promote greater efficiency in local government by forcing managers whose budgets are supported by such charges to keep their costs in line with revenues.

The growing popularity of benefit-based financing in local government is reflected by the fact that fees and charges (including special assessments) currently account for one-third of municipalities' own source revenues compared with less than one-quarter in the early 1970s (Pascal, 1982). Moreover, three-quarters of all cities claim to be making greater use of charges and fees, and public opinion polls

¹ The definition of beneficiary charges used here is purposely broad because it allows us to include a wide range of user fees, charges, and assessments in our analysis. A more strict construction might limit them to direct service fees designed to cover the cost of current service provision to individuals.
reveal a majority of citizens prefer raising revenues through user fees rather than taxes (Shannon, 1982). Given the likelihood that even more local governments will consider using beneficiary charges in the near future, a survey of current practices could be of considerable practical utility for local governments.

The survey of jurisdictions was designed to provide information about current beneficiary charge practices that could be made available to local governments. The specific questions to be addressed included: which local services rely most heavily on user fees and charges, what types of fees are employed and with what frequency, what strategies motivated the use of fees and the way charges are set, how are fees calculated, what percentage of costs is recovered through fees, and what administrative and political factors need to be considered when one is instituting benefit-based financing?

DESIGN CONSIDERATIONS

Two considerations were central to the design and implementation of the survey. First, the information needs of local governments would be better served by documenting benefit-based financing practices in a select set of exemplary jurisdictions rather than in a representative sample of all jurisdictions. This indicated a "case study" rather than a "statistical" emphasis for the survey. Second, even in those jurisdictions that were aggressively using benefit-based financing, the practices used were likely to vary considerably among service areas. This fact, which was suggested by our review of the literature and confirmed by discussion with a wide variety of city officials, prompted us to use individual governmental service units--e.g., fire, police, sewers--as our unit of analysis.

Nine service areas were chosen for the study. The services chosen are representative of those typically provided by local jurisdictions. Indeed, in the 1977 Census of Governments, these services constituted 27 percent of all direct general expenditures by counties and 44 percent by municipalities; excluding expenditures for general government overhead and administration, the percentages were 31 and 50, respectively. The

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2 Provisions, if any, made for special user groups (e.g., low-income and elderly residents) are the subject of Sec. III.
only major expenditure categories excluded were education (which is frequently provided by special districts independent of county and municipal governments), welfare services (for which benefit-based financing is obviously inappropriate), hospitals, corrections, public utilities (water, gas, and electricity), and local government-operated liquor stores. The nine specific services areas chosen for the survey were: Emergency Medical Services (EMS); Fire; Libraries; Licenses, Permits, and Inspections; Parks and Recreation; Police; Sewers; Solid Waste Disposal; and Streets and Traffic. These areas not only provide a diverse mix of services, they also differ substantially in their use of benefit-based financing.

Given our decision to focus on "exemplary" rather than "typical" cities, we used a networking rather than a statistically representative sampling strategy. The networking approach relies much more heavily on nominations from knowledgeable informants than on standard statistical sources—e.g., the Census. Over 100 different sources were consulted, including professional and trade associations, state and national leagues of cities, fiscal watchdog groups, various federal government agencies, professional and trade journals, and the local governments who were themselves nominated. Well over 150 local governments, primarily cities, were nominated. Although all regions and over 30 states were represented among these nominees, by far the most frequent source of nominees were states that had passed stringent property tax limitation measures, namely California and Massachusetts. Of the 150 nominees, over 100 were contacted. A summary of the number of jurisdictions contacted in each service area is listed in Table 2.1.

Each jurisdiction contacted was first screened to determine if the service area nominated or other service areas within the city were indeed using some form of beneficiary charges. If the screening confirmed the informants' recommendations, then a more detailed interview was initiated. These interviews were often directed at several separate officials in a jurisdiction. Since service areas rather than jurisdictions were the unit of analysis, separate survey protocols were used for each service area. These protocols covered various topics, including: a description of the types of services provided, who provided those services, whether service levels had
Table 2.1

SUMMARY OF SAMPLING RESULTS

<table>
<thead>
<tr>
<th>Service Area</th>
<th>No. of Jurisdictions Contacted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emergency Medical</td>
<td>9</td>
</tr>
<tr>
<td>Fire</td>
<td>7</td>
</tr>
<tr>
<td>Libraries</td>
<td>10</td>
</tr>
<tr>
<td>Licensing, Permits, and Inspections</td>
<td>7</td>
</tr>
<tr>
<td>Parks and Recreation</td>
<td>6</td>
</tr>
<tr>
<td>Police</td>
<td>16</td>
</tr>
<tr>
<td>Sewers and Drainage</td>
<td>12</td>
</tr>
<tr>
<td>Solid Waste</td>
<td>8</td>
</tr>
<tr>
<td>Streets and Traffic</td>
<td>10</td>
</tr>
<tr>
<td>General</td>
<td>17</td>
</tr>
</tbody>
</table>

recently changed, the total budget and sources of revenue for the service area, the charging practices employed, and any past or planned future changes in charging practices. Although covering many common substantive issues, each protocol was designed to be specific to a particular service area. Finally, additional documentation—e.g., ordinances, brochures, budget data, schedules of fees—was requested.

Although we believe that the information obtained in these interviews can be of considerable use to local governments, the reader should keep several points in mind when reviewing these results. First, these findings in no sense describe a representative sample of jurisdictions. Correspondingly, one cannot generalize from these findings as to benefit-based financing practices in the "typical" local jurisdiction. Thus, these findings should be viewed as instructive rather than definitive. Second, when considering how these findings might be applied to a particular local area, readers should be aware that the organization of service delivery often varies dramatically among cities. For example, one jurisdiction may provide police, fire, and EMS as part of a unified protective service department, while another may provide each of those services with separate departments. Similarly, while one jurisdiction may supply solid waste disposal using
municipal employees, another may contract with a private firm and yet another may not provide the service at all relying instead on private firms to meet residents' needs. Clearly, readers should consider how their own local circumstances differ from those of the jurisdictions described. Finally, our analysis of the survey results indicates that the flexibility local jurisdictions enjoy with regard to benefit-based financing practices is related to the political, legal, economic, demographic, and social characteristics of those jurisdictions. Some state constitutions constrain the use and levels of fees by local governments. In addition, practices that rapidly growing communities can easily implement may be all but impossible in declining or stable areas. Although we have attempted to identify how such factors constrain user fee practices, the nonrandom character of the survey sample limits our ability to do this. Thus, the readers should carefully consider if the practices described here are feasible in their communities.

SURVEY FINDINGS

One clear-cut finding that emerged from our discussions with both local government officials and those who nominated those governments is the considerable diversity in the use of benefit-based financing across service areas. Some services are routinely funded almost exclusively from charges (e.g., sewers and public utilities); while others (e.g., police and fire) are rarely funded to any significant extent from charges. Such differences seem to hinge on the nature of the service and its beneficiaries, the administrative and political feasibility of instituting charges, and the degree to which publicly supplied services compete with private sector alternatives. Such competition may be indirect, in the sense that local government recreation services compete with private amusement parks, or direct as when the managers of municipally run solid waste services are challenged to keep their costs below those of private collectors to prevent replacement of the municipally operated service by private contractors.

Although the distinctions among individual services along each of these dimensions are not always clear cut, we have grouped service areas according to the classification scheme presented in the introduction.
Thus, we present the survey findings for public good services, monopoly services, private good services, and merit services. This typology is more descriptive than analytical and is designed to describe rather than explain differences in user fee practices. Factors that may help explain why fee practices differ across service areas are discussed in the description of individual service areas.

Overall, the most aggressive use of beneficiary charges occurs in the monopoly services, followed by the private good services. Benefit-based financing is less common among merit services and rarely used for public good services. There is, however, considerable diversity both in the ways these services are organized and in the use of benefit-based financing practices within these categories. Below we examine the range of that variability.

PUBLIC GOOD SERVICES

Police services are less likely to employ beneficiary charges than any of the services examined in the survey. None of the 16 departments we contacted, for example, obtained even 5 percent of their operating funds from such charges. Instead, they relied very heavily on revenues from their local governments' general funds, sometimes supplemented with federal and state law enforcement grants to fund their operations. The reasons for this situation include the strong belief among both law enforcement professionals and the general public that police protection is a vital public service that benefits the entire community. Police services are typically the last to be cut back and the first to receive bailout funds and thus are considerably less likely to need to seek alternative revenue sources. The diffuse benefits and services police departments traditionally offer often make the imposition of public beneficiary charges administratively and politically unwieldy.

The most frequent charges collected by police departments appear to be for contract services performed for other units of government. For example, the Los Angeles County Sheriff's Department contracts with smaller cities and towns to provide either basic police protection or such specialized services as homicide investigations or laboratory work. Saint Paul's police department provides communications services to other city departments and is reimbursed for those services. Although the
amounts collected from such contract services are sometimes substantial, they are not charges to individuals per se and may more correctly be regarded as inter- or intra-governmental arrangements rather than as benefit-based financing.3

Those beneficiary charges that police departments do levy are typically for special services provided to private individuals or organizations, such as fingerprinting, record copying, parade permits, accident reports, and providing extra services for special events. None of the departments we contacted collected substantial revenue from any one of these sources or even from all sources together. For example, Fairfield, California, which had the most detailed list of charges we were able to obtain, received only about $30,000 out of a total public safety department budget of almost $6 million. Certain of these fees are employed less to raise revenues than to discourage the misuse of a service as, for example, when cities charge a fee for all false alarms above some minimum that are registered with central dispatch.

Although these special service fees are designed in principle to remove the implicit subsidy taxpayers provide the clearly identifiable users of these services, the difficulties involved in determining the full cost of such services frequently result in fees being set on other than a full cost basis. Most departments we contacted, for example, set their fees based either on what other local departments charge for the service or on the basis of direct labor and material charges. Only two of the cities we contacted (Fairfield and Napa, California) considered departmental administrative costs in setting their fee levels. Moreover, several cities refer individuals seeking crowd and traffic control for profit-making events to off-duty officers.

There are some exceptions to the general practices described here. In the aftermath of the passage of Proposition 13, Palos Verdes Estates, a wealthy suburb of Los Angeles, passed a special assessment of $75/year/residence to cover additional public safety salary and

3Typically, the amount of the contract is set on some type of prorata or fixed fee basis rather than on an explicit fee for specific services. Given the diverse range of services the police generally perform (patrolling, arresting, traffic control, etc.), determining the full costs of a specific service, including allocated overhead, fringe benefits, depreciation, etc. can be quite difficult. See Chaboten, 1982.
equipment needs. A more novel and decidedly ironic example of police fees is the Florida Contraband Forfeiture Act, which allows police authorities to confiscate property used in the commission of crimes. The Florida Department of Law Enforcement reports that the law was used to seize almost $7 million of property in the first nine months of 1982 and the city of Jacksonville, Florida, seized more than $1 million (Jacksonville Journal, March 7, 1983). Although this law has been upheld in Florida, a similar law was overturned by the Louisiana State Supreme Court.

Fire services, like police services, usually rely on the general fund to support their budgets. However, the survey uncovered considerably more experimentation with beneficiary charges among fire than police services. To some extent, this difference reflects the fact that fire services are more likely to be organized into special districts that are either partially or fully independent of municipal governments. The Broward County, Florida, fire department, for example, provides fire services to 104 square miles of unincorporated land in the county through a special fire district. The vast majority of the district's revenues are raised through a special assessment against homes and businesses in the district.4 Although resembling a special district property tax in many ways, the Broward County special assessment fees differ in that all residential properties pay a flat fee ($35.11/home) while business assessments are based on square footage of improved property. Thus, to the extent that the demand for fire protection differs for residential and nonresidential property (which it indeed does) and that difference is accurately captured by the size of the property (which is only partly accurate), then the Broward County special assessment resembles a user fee.

A more important reason for the greater use of user fees among fire than among police services is the difference in the range of services they perform. Although the lion's share of most fire departments' budgets is spent for fire suppression, which like police protection is typically funded from the general fund, most fire departments devoted a much smaller but nonetheless significant share of their revenue to fire

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4Over 98 percent of the department's $3,177,750 1982-1983 budget was raised through the special assessment.
prevention. Such services include enforcement of fire codes, building permits and inspections, and permits for potential dangerous activities (e.g., handling hazardous or flammable materials). Although the enforcement of fire and building codes and regulation of potentially hazardous activities provides general public benefit, these services often provide direct and clearly identifiable benefits to individuals and as such are prime candidates for beneficiary charges. Among the fire services interviewed, several were able to recover a large share of their fire prevention budgets through fees: San Clemente, California, 38 percent; Ft. Lauderdale, Florida, 14 percent; and Davis, California, 13 percent. Typically, no one fee, fine, or permit raises significant revenue by itself, but together they can offset a considerable share of total costs, particularly when the fees vary with the cost of providing the service. Fort Lauderdale, for example, varies its fire inspection fees based on the size of the building to be inspected and the expected time required for the inspection. The resultant fee income is designed to cover direct labor costs only. Although Davis’s fire service currently charges fixed fees for fire inspections, they plan to introduce variable fees and have set up labor accounting systems in which personnel will specify time spent by activity to facilitate this process.

In addition to an aggressive use of prevention service fees, San Clemente has instituted a number of other unique fire service fees even before the passage of Proposition 13. San Clemente authorities recognized that continued population and commercial growth would severely tax their ability to meet the demand for fire protection services from their general revenues. In response, the city council adopted a novel set of fire protection charges and assessments. The enabling ordinance has two parts. The first includes a series of fees for services that impose a financial burden on the city above the levels of service currently provided by the fire department. Typical impositions are standby charges for special events, state mandated duties (e.g., an evacuation plan for the nearby San Onofre nuclear power plant), plan checking, permits, and a fire cause fee. This last fee enables the director of fire protection to charge the actual costs of suppressing fires when the fire is caused by a violation of the Uniform
Fire Code. The second part of the ordinance creates a series of fees imposed on all residential and nonresidential developments. The fees vary both by type of use and structure size and are collected when the building permit is issued. The revenues collected from these new construction fees are deposited in a dedicated public safety fund that can be used only to fund the capital improvements required to expand the fire service system. In the year after they were enacted, these charges and assessments produced $176,000 in revenues.

Probably the most novel use of benefit-based financing for fire services is the use of fees to fund fire suppression. Although we were unable to identify a single jurisdiction where fire suppression fees are currently in use, such fees have attracted increasing attention. Using grant funds from the National Science Foundation, the Tacoma, Washington, Fire Department conducted a feasibility study of such a fee, although the fee itself was never instituted. In addition, Chino, Los Angeles County, the City of Commerce, and Inglewood, California, designed such fees subsequent to the passage of Proposition 13; the latter two cities actually passed statutes implementing fire service fees. However, state bailout funding later prompted those jurisdictions to suspend the fee. Subsequent to staff cutbacks resulting from Proposition 2-1/2, Boston, Massachusetts, actually enacted such a fee, known as the Augmented Fire Service Fee (AFSF). However, full implementation has been suspended until its legal status is resolved.

Although the various fire service fee proposals differ somewhat in their details, all are designed to deal with the problems inherent in funding the entire fire suppression budget from property tax revenues. The first of the problems arises because most fire departments must maintain a suppression capacity that far exceeds the typical fire suppression task. For example, Fire Chief Magazine (November 1981) asserts that 95 percent of all fire department responses can be handled by one company, yet fire departments must maintain the men and equipment necessary to deal with infrequent large structure fires. As a result, residential properties may end up subsidizing the costs of that added

\[^{5}\text{Several private sector firms provide a full range of fire services on a fee for service or subscription basis, e.g., Rural Metro in Scottsdale, Arizona.}\]
capacity, which they will never use. A second problem arises because
the potential fire hazard posed by a structure (and hence its likelihood
of requiring fire services) is often not accurately reflected in
property values. Many structures with up-to-date fire prevention and
suppression devices are more expensive than older, poorly equipped
buildings that pose considerably greater fire hazards. In addition, the
owners of older, less fire resistant structures actually have a
disincentive to upgrade their fire prevention systems as such
improvements can increase the market value of their properties, hence
their taxes. Finally, universities, hospitals, etc. may require special
suppression capacity but are often tax-exempt and thus not required to
bear any of the cost of maintaining that capacity.

Boston's AFSF provides a useful example of how a fire service fee
would work as well as the political problems that are involved in
implementing it. The fee was specifically designed to cover the costs
of the extra suppression capacity needed for nonresidential fires.
Basic residential service was viewed as a public good to be supported by
the general fund. The first step in implementing the AFSF, then, was to
distinguish those costs directly attributable to the maintenance of
staff and equipment needed to deal with large structure fires—in
Boston's case, this amounted to approximately 20 percent of the total
department budget. Next, each large structure within the city was rated
according to insurance company standards on two aspects of those
structures: first, the "needed fire flow" (fire suppression capacity,
measured in gallons per minute of water needed) to cover basic property
protection and second, the "safety fire flow" or the special services
needed to provide life-saving services associated with a fire.
Structures can also earn credits for alarm connections and be assessed
penalties for inadequate access to fire connections. A detailed set of
conversion factors permitted conversion of both the "needed fire flow"
and the "safety fire flow" into comparable units (gallons per minute);
the total number of such units for all covered structures was obtained
for the city. This sum was then divided into the total cost of
providing service to such structures to arrive at a dollar cost per
unit. Each structure's rating was then multiplied by the standard unit
cost to determine the total assessment fee.
Before it enacted the AFSF, Boston was required to obtain enabling legislation from the state legislature. They also hired a consulting firm to design their rate structure. The local ordinance enacting the fee was passed by the City Council; the assessments, which were to be collected in semi-annual installments, were sent out in early 1983. Subsequently, several suits were brought against the AFSF by real estate and tax-exempt groups. After an initial ruling against the AFSF on the grounds that the revenue produced by the fee exceeded the costs of the service (and thus constituted a tax rather than a fee), the initial ordinance was revised. A subsequent court decision questioning the legality of fees for services available rather than services rendered has left the legal status of the AFSF up in the air.

Although cooperative home insurance programs are not really an example of benefit-based financing, they merit mention here as an additional approach to raising revenues for police and fire services. Such programs involve cities either directly or indirectly in providing insurance to local homeowners in cooperation with private insurance companies (CIMA, 1983). The basic concept behind this program is that local governments can use their expertise in crime and fire prevention (e.g. home inspections) to reduce the insurance risks of individual homeowners in their jurisdictions. Such reduced risks can reward homeowners with lower insurance rates and insurance companies with lower loss ratios. The insurance company will return part of their savings to local governments. Although the degree of local government involvement in such programs can vary from holding a group policy for enrolled homeowners to simply announcing the availability of the plan, all governments would be required to maintain a qualified home safety program in which city employees (typically firefighters) would meet and consult with local residents and evaluate their dwellings as to safety and security. Several California cities have considered such programs, including Huntington Beach, Orange, and San Clemente; and two, Mill Valley and Seal Beach, have actually implemented programs. The

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6A survey of 11 western states revealed that only California, Utah, and Washington have statutory provisions for fire service charges (Wilson, 1978).
principal political opposition to such programs comes from independent insurance agents who claim the program would involve government in what has traditionally been a private sector enterprise.

PRIVATE GOOD SERVICES

The distinguishing characteristic of the two private good services examined here (EMS and Recreation) is that there are often close substitutes for these services in the private sector. Recreation services, for example, are often in indirect competition with amusement parks, private clubs, and other entertainment enterprises. As a result, private services must be more responsive to public demand than other public services. Moreover, because these services are typically prime candidates for budget cuts during periods of local government fiscal stress, the managers have a strong incentive to provide services the public wants and at a price the public is willing to pay. Correspondingly, private good services are prime candidates for aggressive use of benefit-based financing so long as they don't price themselves out of their markets.

Two basic problems constrain the ability of private good services to recover full cost through beneficiary charges. First, the public's use of these public services is often highly sensitive to the price charged for the service. Setting fees at a level sufficient to cover the full cost of operating a specific program may be counterproductive if the public is unwilling to pay that fee. The public's sensitivity to fee levels can be a particularly difficult obstacle to the introduction of user fees in communities that have traditionally funded these services through the general fund. As one respondent stated, "the difference in the public's mind between a $1 fee and a $2 fee is much less than the difference between no fee and a $1 fee." A second problem with the aggressive use of benefit-based financing in the private good services is that low-income residents may be unable to afford the fees charged either for the publicly (or privately) supplied services.

User fees were typically employed in both of the private good services included in the survey (Emergency Medical Services and Recreation). However, these fees were generally designed to recover operating costs rather than the full cost of service delivery. Although
both of these services frequently charge fees, they do so in somewhat different ways. Emergency medical services usually rely on a small set of large fees, and recreation departments often use many smaller fees in the hope that in combination they will cover much of the operating expenses.

Emergency Medical Services (EMS)\(^7\)

Although none of the emergency medical services we contacted relied exclusively on benefit-based financing for funding, there were noticeable differences in the degree of full cost recovery from fees depending upon how the service was organized and what specific services it provided. EMS provided by fire departments generally received a considerably smaller share of their total budget from fee revenues than did services run independently of fire departments.\(^8\) Similarly, those EMS services that, in addition to basic and advanced life support, provided both emergency and nonemergency ambulance service were more likely to recover a high percentage of total costs through beneficiary charges. These factors are not entirely independent, however, because the independently run services we contacted were considerably more likely to provide ambulance service than were the services operated by fire departments.

Several factors contribute to these differences. For example, it is easier to determine the total cost of the EMS service when it is operated as a separate department. In many fire departments, all emergency medical technicians (EMT-1s) and paramedics are also firemen, who in the course of a particular shift may perform both duties. San Clemente, California, for example, trains all firemen to perform collateral duties in an effort to increase efficiency. In addition, two of the independently run services (Tulsa, Oklahoma, and Kansas City, Missouri) were explicitly established to take over from ineffective private EMS suppliers. They were set up as independent public trusts to

\(^7\) A more detailed discussion of this service area is contained in Sec. V.

\(^8\) Of the cities we contacted that operate EMS through the fire department only Burlington, Iowa, recovered fee revenue covering 50 percent of total cost. The three independently run EMS services recovered between 70 and 85 percent of their costs through fees.
operate along the public utility model and commissioned to increase service levels. They were allowed to charge the fees required to maintain that level of service. Independently run services are also better able to respond to and schedule revenue producing nonemergency ambulance services than are fire departments, whose principal mission is responding to emergencies. This point can be especially important in communities with a large number of low-income residents who often use EMS as their primary medical delivery system. The Los Angeles County fire department, for example, told us that a major reason for not charging fees for EMS was that many users of their services simply could not afford to pay fees. Moreover, Medicare and Medicaid provide much more comprehensive reimbursement to emergency medical services that provide transportation in addition to on-site treatment.

Three different types of fees were charged for EMS by the services we contacted: a transportation charge based on mileage, a charge by type of service (e.g., basic life support and advanced life support) and fees by procedure (e.g., oxygen, IV, cardiac monitoring). Departments charging by procedure generally include a base charge, which varies for emergency and nonemergency service, as well as a procedure charge (Tulsa and Kansas City). Burbank, California, charges no fee for the service but does charge for transportation if required and varies the fee depending upon whether the transportation is scheduled in advance.

Even when cities do attempt to recover costs for EMS, they typically do not include all the costs of providing the service. The costs most typically excluded are departmental overhead, general city administration and overhead, and fixed asset replacement. Only one service contacted, Tulsa, appears to include all of these costs as well as the costs of bad debt losses. Tulsa also projects that by 1983-84, 100 percent of costs will be recovered from fees. Tulsa also has the most efficient billing system, and all service users receive an itemized bill (base charge plus procedure and materials and transportation charge) within one week of treatment. Like most of the other departments contacted, Tulsa bills patients directly.
Recreation

Recreation departments are probably under more pressure to adopt some form of benefit-based financing than any other local government department. As a result, beneficiary charge practices appear to be changing very rapidly in this service area. A National Park Service survey, for example, indicated that 80 percent of the California cities they contacted had changed their user fee practices after the passage of Proposition 13. Moreover, many of the cities we contacted that were doing little with beneficiary charges in other areas were considering or already had increased their fees for recreation services.

The dynamic behind these pressures and the changes they have generated are not hard to discern. As local governments feel the strain of rapidly rising expenditures and stable or slowly increasing revenues, they look for services to cut and—because they are typically viewed as nonessential—recreation services are prime candidates. In addition, cutbacks in federally funded public sector employment—e.g., CETA—have severely affected many recreation departments that relied heavily on that funding to hire part time personnel. Finally, the usage of recreation services varies considerably within any community and funding through user fees rather than general tax revenues is both more equitable and more politically feasible.

Despite factors promoting the use of benefit-based financing for recreation services, several special characteristics of these services must be considered in instituting a comprehensive fee program. First, recreation departments typically provide a heterogeneous array of services that can make the determination of the full cost of providing any service difficult. Second, the use of fees is not always administratively or financially practical. Several respondents noted, for example, that the use of admission fees to such facilities as lakes and beaches were infeasible without expending substantial funds to restrict entry to those facilities. Others noted that the fee revenues that a particular service could reasonably be expected to generate would not match the costs of administering the fee. Third, perhaps more than any other local government service, use of recreation services is highly sensitive to the price of the service. For example, the Pennsylvania
Department of Parks and Recreation estimates that when fees are first introduced, use drops by as much as 40 percent in the first year and it is not until the fourth year that it approaches pre-fee levels. Consequently, fee levels for recreation services are typically set based on what the public is willing to pay rather than on what it costs to provide the service. Finally, although recreation services closely resemble private goods, the process of setting fees for those services is often influenced by considerations of general public benefits. For example, virtually all of the recreation departments we contacted adjust fees downward to encourage use by children. Similarly, one city's attempts to raise greens fees at their municipal golf course to levels comparable to those of privately operated courses were vetoed after the public complained that "a municipal course...should be cheaper."

Although the specific types of fees and their amounts differed somewhat among the recreation services we contacted, their general approach to benefit-based financing was similar. Most cities recovered as much of the operating costs (salaries, supplies, subcontracts, purchase of equipment, and departmental administration) of providing the service as possible. However, none succeeded in recovering all of their operating costs. (The range of recovery was generally between 25 and 66 percent.) General government overhead and administration, maintenance of recreation facilities and capital expenditures for recreational activities were paid out of general tax revenues, state or federal grants, or other revenue sources. No doubt, because general city revenues are used to defray these other costs, most of the recreation departments we contacted charged higher fees for nonresidents than residents. In addition, cities appear to be trying several other ways to help reduce or offset costs including soliciting donations from private firms (Oakland, California), using volunteers to help administer sports leagues (Petosky, Michigan), and holding various events to raise funds from the community (Anaheim, California).

None of the recreation departments we contacted attempted to collect fees for all of the services they provided. Instead, they pursued a strategy of aggressively using fees where public demand would support it and, when revenues exceeded costs, using that revenue to subsidize other services. Wilkes-Barre, Pennsylvania, for example,
operates the bar and grill at their municipal golf course and uses the profits to help defray the costs of maintaining the golf course. Similarly, Petosky sells oil and gas at their marina and rents space at their campground and uses that revenue to support services that don't pay their own way. The leading candidate services for fees were golf and tennis, adult sports leagues and tournaments, and recreational and educational classes. An additional fee source that aggressive departments employ is facility rentals.

MERIT SERVICES

The two merit services discussed here, libraries and parks, are so classified because they share characteristics of both public good and private good services. Like public good services, they provide a general benefit to the community. In the case of libraries, this benefit results from the access to knowledge and information that helps to ensure an informed citizenry. In the case of parks, it results from a more attractive environment and a facility for idle youth who might otherwise get into trouble. Like private good services they also provide direct benefits to individuals and compete at least indirectly with private sector enterprises. Libraries, for example, offer books, records and other services that individuals could purchase (at a higher cost) elsewhere. Parks compete, at least indirectly, with private entertainment resources.

Although merit services share many characteristics of private good services, their use of benefit-based financing is in most cases much more similar to that of public good services. These services typically use some beneficiary charges, but those are not pursued very aggressively; for example, they are not designed to recover anything approaching full costs but instead supplement general fund revenues. Continued pressures on local financial resources may be altering this pattern.

*Several excellent handbooks on user fees have been published by the U.S. Department of Interior, National Park Service. In addition, both the Pennsylvania and Michigan Departments of Recreation have published studies and manuals on this topic.
Parks

Parks are distinguished from recreation services, which are treated as a competitive service, in that they refer to the facility itself and not to the organized activities designed to provide recreation for individuals. Those activities may or may not take place in a park. Indeed, the major operating expenses of most park systems are more likely to be related to administration and maintenance than to the provision of specific services. Park services do not therefore lend themselves to beneficiary charges in the same way as do some other services. Instead, the typical fees are parking and admission fees and any franchise fees paid by concessionaires. The amount that can be raised is of course limited both by the public's willingness to pay and by administrative feasibility in much the same way these factors limit fee revenues from private good services.

The somewhat limited potential to raise revenue through beneficiary charges has led many park departments, following the lead of recreation services, to pursue various fund raising strategies including soliciting donations from corporations (e.g., adopt a park program), encouraging the public to become members of local friends of the park associations, holding special fund raising events such as "jog-a-thons" (La Habra, California), and distributing "gift catalogs" from which the public is encouraged to donate items or the funds needed to purchase items listed in the catalog to the parks department. The donations can range from seedlings to major maintenance equipment.

While park departments are feeling increased pressures on their operating budgets, their capital budgets for the acquisition and development of new parks may be under even more pressure as local government officials seem inclined to devote their limited resources to maintaining existing facilities rather than acquiring new ones. One way growing communities have dealt with this problem is the imposition of development fees earmarked for the acquisition and development of new parks. Colchester, Vermont, a growing bedroom community, instituted a

\[^{10}\] The U.S. Department of the Interior, National Park Service (formerly the Heritage Conservation and Recreation Service) has published several brochures that describe these programs in detail.
land acquisition and development fee to acquire and develop parkland. Developers who build four or more residential units are charged $350 per house, and the revenues are earmarked for capital expenses only. Similarly, the State of California has allowed local communities to charge new developments a special fee (the Quimby fee) to acquire and develop parkland. This option is not usually available to stable or declining communities, however.

**Libraries**

Libraries are among the least aggressive users of benefit based-financing. Despite an intensive search, we were able to locate only one library system that recovered more than 10 percent of its total costs (Huntington Beach, California) from fees and only one other that approached a 5 percent recovery rate (Denver, Colorado). This phenomenon reflects a view shared by professional librarians and the public that libraries provide a general public benefit that should not be limited by fees. A poll of the members of the Indiana State Library Association, for example, revealed that 85 percent felt library services should be provided free of charge. However, many of the diverse services libraries offer are akin to private goods, and the public's willingness to use those services is highly sensitive to price. An aggressive fee program would consist of charging a small fee for many items—a process that could easily prove administratively unwieldy and would still not recover full costs.

Instead of relying on beneficiary charges, libraries typically rely on local governments' general funds for support. As local budgets have become tighter, libraries, like park departments, have looked more to fund raising events, such as book sales, bequests, requests to corporations, and foundation grants. The Dallas library, which has recently opened a modern central city main library, has been notably successful in this respect.

Although the problems of public opposition and administrative feasibility appear endemic to such merit services as parks and libraries, libraries that do use fees aggressively implicitly recognize that certain library services are public goods while others are much more like private goods. Such cities support the public good services
with general fund revenues but charge fees for the private good
services. Libraries are, of course, limited in their ability to recover
the full costs of providing the private type of services through
beneficiary charges by the same factors that limit local governments' 
ability to recover the full costs of providing private good services--
the public's willingness to pay and the administrative feasibility of 
fees.

The distinction between these two types of library services is
perhaps most easily drawn in terms of specific services rather than
general principles. General access to the library to check out books
and to consult reference sources, newspapers, and magazines fall within
the first category. Services of the private good type include computer
or special reference searches; use of meeting rooms; private use of
on-site microcomputers, typewriters, and copy machines; and access to
records, tapes, and movies. All of these private goods are also
available in the private sector.

Although libraries sometimes charge for both types of services, the
philosophy behind the charges differs. For example, libraries have
routinely charged fines for overdue, damaged, or lost books and fees for
lending best sellers; some have even considered charging a refundable
library card deposit. The philosophy behind such charges, however, is
not to raise revenues or even, typically, to cover costs, but rather to
discourage misuse of the facility or to prevent queuing. Some
libraries, in addition, charge nonresidents for use of library
facilities (e.g., St. Louis, Missouri; Prince Georges Co., Maryland; and
Arlington Heights, Illinois), but these fees are justified by the
premise that nonresidents have not already paid for the service through
property taxes. Indeed, Arlington Heights, which has the highest
nonresident fee of any library contacted ($115/yr), sets their fee based
on what they estimate the average resident taxpayer pays for the use of
the library. We found only one city, San Leandro, California, that
actually instituted a library card fee for residents ($2/adult and
$1/child); however, it rescinded the charge when usage dropped markedly.

Charges for the private good services supplied by libraries are
often explicitly set either to help defray the costs of providing the
service or to raise revenues. Libraries that do use this type of
beneficiary charge are generally constrained more by what the public will pay than by what the service costs. For example, Huntington Beach, California, the most aggressive user of beneficiary charges we interviewed, had to reduce their user fees (video tape rentals) when demand dropped off too sharply. Their increase in fees for reserving books reduced demand sharply, thus guaranteeing more equitable access to a basic service. In addition, Huntington Beach's fees for popular music and movies vary with the popularity of the item. In general, most of these fees are small and by themselves raise only a small amount of revenue, but computer searches and room rentals can more than pay for themselves.

Libraries are sometimes constrained in their ability to raise revenues from fees even when the public is willing to pay. For example, the Denver Public Library, which provides services for the entire state, has accumulated a considerable energy information data base. Viewing a library's function as more than just a warehouse for books but rather an information center, they attempted to take advantage of their data base by going into a partnership with a private firm to provide an information retrieval system for energy related companies. After all the arrangements with the subcontractor were worked out, the city attorney threw a wrench into the deal by stating that cities could not make a profit on any aspect of their operation. As a result, the information system is still on the drawing board.

**MONOPOLY SERVICES**

Monopoly services are those over which local governments typically exercise a monopoly and are frequently operated like public utilities. Four such services were examined and included in the survey: sewers and drainage; solid waste disposal; streets and traffic; and inspections, licenses, and permits. Despite the considerable range of functions

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11 For example, when books could be reserved free, they were receiving 2000 requests per month. When they initially raised the fee to $.25, demand dropped to 500/month; and when they raised the fee to $1.00, demand dropped to 130 requests per month.

12 In general, libraries that charge for meeting rooms (and many don't) vary the price according to the user. Profit groups pay the most, but many community groups don't pay at all.
performed in these service areas, all of these services can be considered basic to the general health and welfare of the community and thus a proper area for direct government control or oversight. ¹³

Although there are noteworthy variations in the use of beneficiary charges both across and within these services, as a group they are the most aggressive users of beneficiary charges. For example, they are the most likely to have user charges and to attempt to recover the full cost of service delivery through beneficiary charges. Indeed, two of these service areas, sewers and solid waste disposal, are frequently administered as enterprise fund operations—the public sector equivalent of a private business. Differences in the use of benefit based financing among these services are generally related to such factors as the ability and desirability of recovering full cost through fees, the treatment of capital expenditures, the use of "social goal" pricing, and special provisions for specific user groups.

Sewers and Drainage

Although often administered by the same department, and using similar types of fees, sewage and drainage typically set those fees in very different ways.¹⁴ The different operations of these two services has prompted some cities (e.g., Cambridge, Massachusetts, which currently handles both sewage and drainage with the same system) to initiate programs to separate their systems. Cities with separate systems have partitioned the administrative responsibility for sanitary and storm sewers. Correspondingly, these two related services are treated separately here.

Sanitary sewer systems are more likely to be supported by user charges than any other local governmental service. Indeed, sewer charges are by far the single most important source of local government

¹³ Solid waste collection is performed in some communities by private vendors who contract directly with residents and commercial establishments. However, even in those cases, local governments generally exercise some control either by running the landfill or disposal site or by regulating the private vendor.

¹⁴ The most important distinction between sewage and drainage is that the former requires treatment and the latter does not. These two services are sometimes referred to as sanitary and storm sewers.
user fee revenues (U.S. Bureau of the Census, 1982). For many reasons, sewer systems are run as enterprise funds with user fee revenues covering the entire operating and maintenance costs of the service. First, the benefits and the beneficiaries of the service are clearly identifiable in much the same way as are those water and power services. Second, beneficiary charges are easily administered as usage is typically metered through water meters and collected as part of the utility bill. Third, there is little public opposition to sewer fees because services are viewed in much the same way as public utilities. Finally, and perhaps most important, the federal government's Environmental Protection Agency, a major source of capital grants for sewage treatment plans, requires local governments to institute a system of user fees to cover operating and maintenance costs before they can qualify for those grants.

The types of fees charged and the way they are set differ considerably. The sewer systems contacted for the survey had four types of charges: monthly service charges, wastewater quality surcharges, hook-up and development fees, and inspection and permit fees. In addition, several cities impose fines for late payment.

Although some sewer systems still use a monthly fixed rate for residential service, the principal issue with regard to monthly service charges is how they should vary with usage. Two of the systems we contacted had a fixed rate approach in which monthly fees increase proportionately with usage, a third uses a declining marginal rate approach that provides discounts to large quantity users. Managers have traditionally believed costs decline with usage and have tried to encourage greater usage to offset fixed debt retirement payments. However, Korbitz (1981) points out that recent concern with water conservation and the capital costs associated with capacity expansion have prompted communities to consider using increasing marginal rate fees to encourage conservation. None of the systems we contacted, however, used such an inverted rate structure.

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15A more comprehensive discussion of many of the issues treated here can be found in Water Pollution Control Federation (1982).
16Measured in terms of water use.
A second type of charge is a wastewater quality surcharge to the basic monthly service fee. This charge covers the extra costs of processing and treating some wastewater, particularly that introduced into the system by industry. Abilene, Texas, for example, monitors the quality of industrial sewage, prohibits certain types of solutions and places a surcharge based on the volume of waste exceeding acceptable levels of Biochemical Oxygen Demand, Chemical Oxygen Demand, and Suspended Solids. Such surcharges insure that residential users do not subsidize industrial users.

A third type of user charge is hook-up or development fees, used to defray the costs of adding new users to the system. Typically, where new residential or commercial developments are added to the system, the developer pays those charges, which are designed to cover the entire cost of the connection (Abilene, Kansas and Boulder, Colorado). (Cambridge, Massachusetts, covers connection and improvement charges for new high rise apartment buildings using redevelopment agency funds in order to encourage housing redevelopment. These fees vary from a straight fee based on water meter size to elaborate schedules based on structure type and number of bathrooms in residential units to detailed inventories of the numbers and types of fixtures installed in nonresidential structures (Boulder). Many sewer services require all individuals wishing to connect or improve current connections to the system to file their plans with the sewer department, obtain a permit for a fee, and pay for the costs of inspecting those improvements.

Another source of variability in the use of beneficiary charges among sewer services is their funding of capital improvements to the system. As noted, a large fraction of such capital improvements are funded from EPA grants. However, cities vary in how they fund the balance. Boulder sets aside part of their current user fee revenue to cover such expenses. Cambridge uses general obligation bonds that are then repaid from future revenues. Chicago, Illinois, and Saint Paul, Minnesota, fund such capital expenditures from the general fund.

Drainage (storm sewer) services also rely on monthly service and developer or hook-up charges, but such fee revenues are less likely to cover operating and maintenance costs than are sewer fee revenues,
mainly because of greater public resistance to drainage than to sewer fees. Two cities contacted whose fees were set to cover operating and maintenance costs reported considerable public opposition to drainage fees. As one respondent stated it, "Opponents said we wanted to tax the rain" (Bellevue, Washington). A third city reported not much opposition to fees but noted that fees are purposely kept low so residents won't complain. Moreover, only after a major flood, which caused extensive property and personal damage because drainage ditches were not dredged, did that city (Austin, Texas) institute a user fee.

One reason for the greater political opposition to drainage than to sewer fees is the difficulty of establishing a link between usage and fee levels in the former. In the case of sewers, the volume and quality of effluent varies from each user and, hence, his benefits and contribution to costs are measurable in principle. In the case of drainage, the relationship between benefits and costs is much less direct.

Consider the situation of a residential development in hilly terrain. The greatest benefits of an effective drainage system accrue to the residents at the bottom of the hill, while the residents at the top of the hill don't receive much benefit and may actually contribute substantially to the cost, depending upon how they have built. Our respondents were divided as to how they handled this issue. Austin, Texas, uses a fixed rate system (although with different rates for residential and nonresidential properties), so that the user fee varies only with the size of the property. Boulder, Colorado, attempts to assess the benefits the property owner can expect to receive from the system by setting fees based on a formula that considers the ratio of impervious to pervious area,\textsuperscript{17} the type of storm drain on the property, and whether the property is located in a floodplain. Residents can reduce their fees by installing on-site detention facilities. Bellevue, Washington, uses a fixed fee but charges a different rate for impervious and pervious land. Corvallis, Oregon, charges the fee only on improved property.

\textsuperscript{17}Impervious areas are those that prevent the natural seepage of water--paved surfaces, for example.
In addition to regular service fees, drainage departments routinely require developers to have their plans for storm drains reviewed and approved and to pay the full cost of installing those systems. Bellevue also uses a "latecomer" agreement, which enables the first developer of an area to recoup part of the cost of system installation from any subsequent developer who links into the initial system.

Solid Waste

Although solid waste services are the next most likely candidate for full cost recovery through user fees, there is substantial variation in how this service is performed. A representative of the Government Refuse Collection and Disposal Association (a major trade association) maintained that this service is probably done in more diverse ways (directly by public employees, government contracts to private for profit and nonprofit firms, franchising) than any other municipal service.¹⁸ This variability introduces a potential for competition that is probably lacking in other monopoly services. The director of one municipally operated solid waste system we interviewed noted that if private firms could provide this service to his city at a lower rate than his department, the city would dissolve his organization and contract with private firms—a phenomenon that has already occurred in Providence, Rhode Island, for example. In these circumstances, municipally operated solid waste collection and disposal systems have a clear incentive to press for ways to increase their efficiency and cut their costs. Both of the municipally operated services we contacted were involved in programs to increase their efficiency.

The variation in how solid waste systems are organized extends to how they are financed. Although Tacoma, Washington, has financed its operating and maintenance costs from user fees since 1929, the practice of full cost recovery through fees is neither as widespread nor as longstanding in solid waste disposal as in sewers. And, although this service is a prime candidate for benefit-based financing, the shift from general fund to user fee support often incites considerable public

¹⁸A similar point is made in a major study of the operation and financing of solid waste collection in Savas (1977).
opposition as witnessed by a recent attempt in Los Angeles to introduce collection fees. Little Rock, Arkansas, recently reduced its garbage collection fees after promising to do so if local residents passed a sales tax.

The three most aggressive solid waste service providers we contacted (two provide the service directly, the third hires a private contractor) all operate on a full cost recovery basis with monthly service charges providing most of their revenue. In each case, all operating and maintenance costs are considered (including both departmental and general city overhead and administration). However, these services differ in their treatment of landfill costs. Palo Alto, California, for example, builds into their monthly service charges a fixed percentage of revenues to cover the inevitable closure of their landfill and the development of an alternative. St. Petersburg, Florida, however, is currently facing a sharp increase in monthly rates because their landfill recently closed and they must now make other disposal arrangements.

All three cities run their services as utilities (two are enterprise funds) with monthly fees based on frequency and volume of pickups. Service is provided to both residential and nonresidential properties, although disposal containers, frequency, and rates for service differ for the two. Billing is through the municipal utility systems. Only Palo Alto has considered setting monthly service fees to keep volume down (increasing marginal prices) but has not changed pricing practices to achieve that end. St. Petersburg supplied larger volume cans to facilitate the automation of their residential pickup service. The volume of their residential pickups rose sharply and they have been forced to increase their fees accordingly.

In addition to their basic monthly service charge, each city raises revenue with other charges. St. Petersburg, for example, uses special assessments to cover the costs of cleaning lots in cases where the owner refuses or is unable to do so. Tacoma imposes a surcharge fee ($6 for loads up to 1100 lb or $12/ton) for large loads. Residents may take small loads of items to the landfill directly between normal service days (residential service is once a week) at no additional charge. Palo Alto recently added a $.50/month surcharge to single family residential
bills to cover the cost of curbside pick-up of plant debris--garbage cans are normally picked up in the backyard. Palo Alto also requires a surcharge for bulky wastes--e.g., appliances, furniture--not included in the regular service. Moreover, in an attempt to encourage recycling, Palo Alto charges residents $1 per 1.5 cubic yards of waste delivered directly to the landfill and they refuse to accept certain large items--e.g., appliances. Nonresidents using the landfill are charged higher rates (minimum $4/cubic yard).

Palo Alto's is the only one of the three services to run an active recycling program. (St. Petersburg dropped their recycling program after it consistently lost money.) Although this recycling program currently loses money (a $92,000 deficit on a $286,000 program), the city subsidizes the program from its basic solid waste service.

Streets and Traffic

This service area typically has responsibility for the installation and maintenance of a wide range of public infrastructure including streets, street lighting and landscaping, traffic signals and signs, sidewalks, curbs, and parking meters and structures. In many other service areas, operating and maintenance expenses constitute the lion's share of total costs, but capital expenditures for installation and improvement often constitute a substantial share of street and traffic costs. Such operating and capital expenses are often funded from different sources. Many of the departments we contacted, for example, have traditionally funded basic operating and minor maintenance expenditures from the general fund but used gas tax and licensing fee revenue together with special assessments to pay for capital installation and improvement.

Declining gas and license fee revenues, rapidly escalating construction costs, reductions in available federal funding, and increasing competition for general fund revenues have forced many cities to change their funding practices. The types of changes local governments have made vary according to the types of expenses (expanding the capital stock to accommodate new developments, improvements to existing stock, and minor maintenance and operating expenses) and to whether the community is growing.
Growing as well as stable communities require developers to install and pay for on-site infrastructure (streets, sidewalks, curbs, etc.). Thus, the costs of expanding public infrastructure are typically borne by the developer (and passed along, presumably, to new residents and businesses) rather than by the city and its existing residents. This is not always the case, however, particularly in declining areas that are trying to attract new development. Utica, New York, for example, will provide developers with sewer lines, streets, sidewalks, and, if they qualify, will let developers borrow 35 percent of their development costs from the city at 5 percent interest. Federal Community Development Block Grant monies fund this program.

The costs of accommodating new developments are, of course, not limited to the capital improvements on the development site because increased population and business activity strain the transportation network. As a result, many governments we contacted have instituted fees requiring developers to share part or all of the costs of expanding the existing street systems.¹⁹ Sacramento, California, for example, has a major construction tax on all new buildings in the city. The revenues from this tax (1 percent of value) go into a capital improvement fund to expand and reinforce streets, install new traffic signals, etc. Similar construction taxes have been initiated in Redding and Roseville, California. Bolingbrook, Illinois; Broward County, Florida; and Snohomish County, Washington, require developers to share the costs of capital improvements to the existing street system necessitated by new developments.

Perhaps the most intensive use of these types of beneficiary charges occurs in Thousand Oaks, California. A rapidly growing suburb in Ventura County on the outskirts of Los Angeles, Thousand Oaks has adopted a series of fees including a traffic signal fee, a road paving fee, and a road improvement fee that are designed to require developers to fund both the capital and in some cases the maintenance costs of expanding their street network. Thousand Oaks has developed quite sophisticated techniques for determining the full cost of residential

¹⁹An excellent and more comprehensive review of the issues involved in such fees can be found in Public Technology, Inc., (1982).
and commercial development in their community. They have guidelines for determining how much a development will add to traffic congestion and when a two-lane road will need to be expanded to four lanes. Similarly, they have techniques for assessing the effects of expanding a commercial parking lot and determining when the expected traffic to be generated will necessitate the installation of a new traffic signal and set up fees to recover those costs. They have also set up lighting and landscaping districts that cover both capital and maintenance costs and are funded entirely from fees.26

In addition to accommodating new development, street and traffic departments are also responsible for maintaining and improving the existing street system. Cities have traditionally relied on a combination of gas tax and licensing fee revenues, special assessments, and general fund revenues to fund these activities. However, as revenues from the first two sources have stabilized—a phenomenon many of the respondents noted—local governments have been forced to rely increasingly on special assessments (Portage, Michigan, and Raleigh, North Carolina) to defer needed maintenance or to seek other revenue sources. One way local governments have attempted to deal with this problem is to reallocate funds originally intended for other purposes. Sacramento, for example, now devotes some major construction tax revenues to street repair and improvement. Petosky, Michigan, supplements their special assessment revenues with revenues received from their city-owned electric facility.

One of the more interesting approaches to this problem is Omaha, Nebraska's wheel tax. Originally set up to cover capital costs only, part of the revenues from this tax have been devoted to maintenance of their existing system in response to cutbacks in state aid. (The wheel tax brings in $2.2 million of a $6.7 million maintenance budget.) The tax is imposed on all vehicles registered in the city and is collected when the vehicle is licensed. Passenger cars pay a $12 fee and commercial vehicle fees vary by weight; the maximum fee is $60 for vehicles of 8 or more tons. Even though city officials believe they are

26Such detailed procedures for assessing the effects of new developments on existing infrastructure may be required if the legality of the fees are challenged in court. (See Public Technology, 1982.)
losing between $0.5 to $1 million a year on vehicles improperly
registered outside the county, the revenues from the tax increased 40
percent between 1982 and 1983 and are expected to increase an additional
30 percent in 1984 when passenger car fees will be increased to $16.

The final major expense category in the streets and traffic area is
basic operating and minor maintenance (e.g., street sweeping, pothole
repair). These activities have traditionally been funded by general
fund and gas tax revenues but are now relying on a wide array of fees.
Austin, Texas, for example, has instituted a monthly street sweeping fee
based on front footage. Oakland, California charges a parking stall fee
on all commercial parking lots in the city. These fees, Palos Verdes Estates,
California, passed a two-year special assessment for street and parking
maintenance. (This proposition was placed on the ballot along with the
special assessment for protective services to increase its likelihood of
passage.) Other cities have increased parking meter fees or introduced
fines to cover the repair cost of damage done to streets by private
firms working on public thoroughfares—e.g., utilities, cable TV.

Inspections, Licenses, and Permits

Local governments supply a heterogeneous collection of regulatory
services. Services range from planning and zoning fees and permits to
business licenses and permits to health inspections. They may be
provided by a single department but are far more likely to be scattered
across several departments including Planning, Public Works, Finance,
and Public Health.

There was considerable variation in the use of beneficiary charges
and the percentage of cost recovered through fees among the
jurisdictions we contacted within this service area. Without question,
the most intensive use of fees was in building code enforcement and
inspections. Three cities we contacted (Visalia, California; Phoenix,
Arizona; and Wichita, Kansas) recover all or a very substantial portion
of their operating costs through fees. Wichita’s building department is
set up to run much like a public utility. The two major sources of
revenue in this area are building permits and inspection fees.

21 These fees are not specifically earmarked for streets but go to
the city’s general fund.
Typically, permit fees are based on the value of the improvement, although Phoenix sets fees based on the square footage of the improvement. Inspection fees vary considerably based on the type of work being done. The process of setting these fees is generally haphazard; and, as one respondent put it, there is no guarantee that a city will recover full cost on all permits and inspections. Some may be set at less than full costs, while others recover more. In several cases, inspection fees for electrical, plumbing, and other construction work are reviewed by local construction and trade groups.

An important issue that cities should consider in setting these fees is what costs can and should be included. Some cities consider only direct labor and supply and material costs, and others include departmental overhead and administration. This issue is particularly important in states that, like California mandate that the fee cannot exceed the cost of providing the service. If only direct labor and material costs are considered, fee levels will be much lower than if departmental and general city overhead and administration are also included. One of the difficulties is to determine how to allocate such indirect costs without imposing burdensome reporting requirements on the departments providing the service.\textsuperscript{22}

In general, both building permit and inspection fees are imposed on all properties, including those that are exempt from the property tax. Both Visalia and Phoenix waive such fees in redevelopment areas. In addition, where there is little new development (e.g., Chelsea, Massachusetts), cities have an incentive to keep permit and inspection fees low.

Licenses and business permits are another important source of user fee revenue. Although no one of these fees is likely to produce substantial revenue by itself, in combination the proceeds can be considerable. Visalia raises half of the city's Finance Department budget from business licenses. Such fees can often be an important source of revenue for less affluent slow growth communities. Chelsea derives a very large share of its fee revenue from oil storage tank permits. The fees set for such licenses and permits vary considerably and may be fixed by state regulation.

\textsuperscript{22}Suggestions for methods of allocating indirect costs can be found in American Management Systems (1982).
Zoning and planning activities are less likely to be supported by user charges. As one respondent stated, "Our planning department is a service." Fees are typically for conditional use permits or for zoning applications and appeals. Of the cities contacted, only Phoenix recovered a substantial portion of their costs (67 percent) through such fees.

Health inspections for restaurants, hospitals and nursing care homes are the least likely of any of these regulatory services to be funded by user fees. For example, of the cities we contacted, all that performed this service relied primarily on the general fund for revenues. This practice appears to be used so as not to discourage facilities from undergoing inspections. However, some fees are generated for violations; and if substantial defects are found, fees can be generated from building permits for required repairs.

SUMMARY AND CONCLUSIONS

As expected, our interviews uncovered many important differences in benefit-based financing practices across the service areas surveyed. For example, differences were found along such dimensions as the basic strategies behind the use of fees, the frequency and types of fees, the percentage of costs recovered, and the provisions made for special groups of users such as the elderly and the poor.

By far the most aggressive use of fees was found in the so-called monopoly services (sanitary and storm sewers; solid waste disposal; streets; and permits, inspections and licensing). Most of our respondents in these service areas attempted to recover as high a percentage of both direct and indirect costs as possible. The major exception was in the areas of planning and health inspections, where there were no fees or low fees to encourage service usage for the general public benefit--e.g., for rational community planning or public health purposes.

The next most aggressive use of fees was found in the private good service areas of recreation and emergency medical services. The strategies behind the use of fees in these services differed from that in the monopoly services in that fees were primarily designed to cover
operating costs only (e.g., salaries, supplies, contracts). A major reason for the difference is the concern among managers of the private type of service that they not price themselves out of the markets.

*Both the public good services (police and fire) and the merit services (libraries and parks) have a much less aggressive strategy of using fees only to supplement (to the extent possible) the general fund revenues on which these services primarily rely.* The rationales for these less aggressive strategies differ. Most of the fire and police officials we contacted believed that user fees were an inappropriate revenue source because of the general public benefits their services provided. Although many library and park officials also cited general public benefits as a reason for not relying heavily on fees, they were also concerned about the political and administrative feasibility of user fees.

Not surprisingly, given these different strategies, the extent of costs recovered with fees also varied markedly across service areas. By far the highest cost recovery rates (often approaching or matching 100 percent) occurred in sewers and solid waste disposal. Streets and traffic services, and inspections, permits, and licensing were also able to recover a large share of total operating costs (generally exceeding 50 percent), although there was substantial variation in their recovery of total capital costs. Although the nine emergency medical services we contacted averaged close to a 50 percent cost recovery rate, jurisdictions varied greatly. Three departments recovered at least 75 percent of total costs while most of the others recovered less than 50 percent. Recreation services, probably the next most aggressive user of fees, generally used fees to cover between 25 and 40 percent of their direct operating costs but a much smaller fraction of their total costs. Among the remaining service areas, few of the governments we contacted recovered more than 10 percent of their costs through fees and many raised less than 5 percent. The one exception to this general finding was in the fire prevention area. Although a small percentage of total fire department budgets, several departments were able to cover more than 10 percent of total costs; and San Clemente, California, recovered nearly 40 percent of its fire prevention costs.
Although it is dangerous to generalize from the result of an admittedly nonsystematic sample, several common themes emerged from our discussions with both local government officials and knowledgeable informants. Here we briefly summarize those points.

The issue of benefit-based financing of local government services has clearly emerged as a "hot topic" among local governments. This view was expressed not only by the jurisdictions that are actively experimenting with user fees, but even by those local governments who are not currently using much benefit-based financing. Although many of the latter noted that their current circumstances alleviated the need to rely on user fee revenues, they viewed the shift toward beneficiary charges as inevitable. Furthermore, several of the jurisdictions were currently reviewing their present user fee practices and were planning to revise those practices within the next year. This growing interest in benefit-based financing makes the survey results particularly timely, but it also suggests that current practices are likely to change rapidly; and innovative practices currently being planned or implemented will not necessarily have been identified in our survey.

Although the interest in benefit-based financing is growing rapidly, not all jurisdictions are equally likely to adopt an aggressive use of user fees. For example, most if not all local governments use some types of user fees, but the nature of those charges and the intensity with which they are used to fund local services varies markedly across jurisdictions.

The factors that appear most influential in determining how aggressively local governments use benefit-based financing include the presence of statutory limitations on revenue or expenditures, the sociodemographic profile of the community, and the local government's administrative and accounting practices. There is little question that local governments in states with revenues or expenditure limitations are among the most active users of beneficiary charges. By far the greatest number of nominees for the survey were located in California and Massachusetts, where substantial property tax measures have been passed. However, the passage of fiscal limitation measures does not necessarily induce a flood of new user charges. Both Michigan (the Headlee
Amendment) and Missouri (the Hancock Amendment) have recently passed such measures, but survey respondents in those states noticed no substantial increase in beneficiary charges.

The benefit-based financing practices a local government pursues will also be affected by the sociodemographic profile of its residents. Several respondents noted, for example, that they are severely constrained in the types of user charges they can institute because of the low incomes of their residents. Imposing fees in these circumstances would be self-defeating, because residents would be unable to afford the charges and might be forced to forgo needed services. In general, our results suggest that the most aggressive use of beneficiary charges occurs in middle-sized (25,000 to 500,000 residents) communities with affluent populations.

The single most important characteristic of local governments that use benefit-based financing systems aggressively is a sophisticated cost accounting system. The relationship between a sophisticated cost accounting system and full cost recovery of service provision through beneficiary charges is almost axiomatic because the pricing of services requires local governments to know the full cost of providing the service.

Although the details of sophisticated cost accounting and its integration into a comprehensive financial management system are beyond the scope of this report, two principles are central to such systems. The first is an explicit recognition of the distinction between expenses and cash outlays. Many local governments use an expenditure accounting approach in which current year expenditures summarize government finances. This approach fails to recognize that expenses are not limited simply to cash outlays (e.g., depreciation on capital equipment) and that previous expenditures can be expenses in the current year just as expenditures in the current year can be expenses in future years (e.g., supplies purchased in bulk in a given year can be used over several years). The second principle is the recognition and inclusion of the full costs of providing a service. Such costs include not simply

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23 Two excellent descriptions of the principles and advantages of such systems can be found in American Management Systems (1982) and Hayes et al. (1982). Some additional treatment of this issue is provided in Sec. V.
the direct salary and material costs involved, but also indirect costs--
departmental overhead and administration, city government overhead and
administration, fixed asset replacement, and debt service retirement.
Where statutes prohibit charging more for a service than it costs to
provide that service (e.g., California), governments need to be
particularly aware of this distinction.

In addition to facilitating full cost pricing, a sophisticated
accounting approach, especially when integrated into a comprehensive
financial management system, offers other advantages to local government
managers, including the ability to compare alternative levels and types
of service provision.


III. PROTECTING THE DISADVANTAGED AGAINST INEQUITABLE CHARGE SYSTEMS

by

Kevin Neels, Kevin McCarthy, and Anthony Pascal

Even as they have turned toward beneficiary charges as a source of revenue, local government officials around the country have worried about the effects of this shift on lower income groups. But safeguards do exist. Equity protections for target groups take three forms. The first is to explicitly assure provision of deliberately redistributive and public good services. The second involves manipulation of the charge structure for merit and private good services to ease the burdens placed on the poor and the elderly. The third is a comprehensive voucher system.

PRESERVATION OF ESSENTIAL SERVICES FOR THE DISADVANTAGED

The institution of beneficiary charges in local government helps guarantee that the resources will be available to support continued provision of basic government services to all members of the community. The "free" (tax-financed) basic services take two important forms: public good types of services, such as law enforcement and fire prevention, and redistributive types of services such as public assistance, health clinics, and social services. The more that merit and private types of services are supported by beneficiary charges, the more tax resources are available to finance them.¹ Basic services constitute the first line of defense for the poor, elderly, and disadvantaged.

¹Burbank, California, for example, takes a rather sophisticated approach. Believing that all city services have either a public good component or a redistributive end, Burbank's policy is to subsidize—deliberately refrain from covering full cost—in charge systems across the board.
TAILORING CHARGES TO REDUCE INEQUITY

Even in cases where fees and charges are imposed, it is often possible to adjust them so as to reduce their inequitable effects. Such built-in protections constitute the second line of defense for disadvantaged groups.

**Lifeline Rates**

One approach to this form of protection is a variant on lifeline electricity rates. The idea there is to provide a minimum level of consumption at a low cost. Such rate structures provide for a modest price per kilowatt hour for electricity consumption below a certain level. Beyond that level the price per unit rises. The result is that poor families in small houses with few appliances pay low rates, while wealthier families in large, well-equipped houses pay more.

Our survey of beneficiary charge practices turned up several examples of this form of protection for disadvantaged service users. Many municipally owned utilities have lifeline rate structures for electricity and water. The City of Los Angeles has a similar feature for sewer users; Tacoma, Washington, where normal trash collection is paid for by charges, twice a year offers free pickups for bulky items.

**Target Group Discounts**

Another approach is built on the example of special fares for the different groups that use public transit systems. School children, the elderly, and the handicapped are charged lower fares than other passengers. Once again, the protection is built into the system of charges. Target group discounts are potentially relevant to several city services where residents are asked to pay a fee at the point of use.

Our survey of jurisdictions uncovered many cases in which certain population groups got the benefit of lower charge levels. The discount was usually justified on social grounds. Senior citizens, for example, enjoyed the following examples of preferential treatment:
• Lower monthly drainage fees in Bellevue, Washington
• Low cost annual subscriptions for emergency medical service in Fort Wayne, Indiana and Tulsa, Oklahoma
• Discounts on library user fees in Denver, Colorado and Huntington Beach, California
• Discounts on recreation program fees almost everywhere.

Other kinds of residents are favorably treated too:
• Many jurisdictions make little attempt to collect on delinquent accounts, believing that the poor are more likely to be delinquent
• Boston's proposed fire suppression fee excludes residences
• St. Petersburg, Florida, offers free in-yard trash pickup to the disabled
• Recreation departments all over the country charge lower facility rentals to nonprofit groups. Anaheim, California, even reduces user charges for socially worthy organizations.

Neighborhood Rebates
Another approach would be to establish charges that vary with the income of the neighborhood. Rebates in low income neighborhoods (identified, say, through Census tract statistics) could be installed for local facilities such as libraries and health clinics, or for such services as paramedics and street maintenance.

Surprisingly, our survey uncovered no cases where charges varied with neighborhood socioeconomic characteristics. The explanation probably lies in the political difficulty inherent in following such a visibly discriminatory course.

Special Assessment Deferrals
For services financed through special assessments--e.g., for street maintenance, street lighting or neighborhood parks--it is feasible to offer disadvantaged homeowners the option of deferring payment until eventual sale of property. In this way the jurisdiction avoids placing undue burdens on those with limited cash incomes.
Petosky, Michigan, according to our survey, offers all homeowners a ten-year grace period for paying off assessments. Wichita allows low income residents to defer assessments and offers the deferral option to all one- or two-family parcels for certain categories of traffic improvement assessments. (Even more generous than deferral is Wichita's use of HUD Community Development Block Grant funds to pay special assessments in designated areas of the city and Lakewood, Colorado's refund scheme for assessments paid by low income residents.)

**Equity Protections Employed in the Various Services**

In general, the survey uncovered considerable variation by service area in the use of protective provisions for special user groups. The monopoly service departments that were the most aggressive users of beneficiary charges were also among the least likely to make special provisions for disadvantaged or elderly service users, except for those few places that permitted deferral of assessments for capital improvements. In contrast, the departments supplying private-good types of service (recreation and emergency medical services) routinely provided either direct or indirect discounts for the elderly, youth, and the poor. Examples include reduced admission fees to swimming pools or recreation classes for children and senior citizens and special reduced rate subscription programs for emergency medical services. Perhaps because the merit good (libraries and parks) and public good (police and fire) services are less aggressive in their use of beneficiary charges, they are also less inclined to provide for the disadvantaged.

**Complications**

Whether a jurisdiction opts for lifeline rates or target group discounts or neighborhood rebates, a "fair" subsidy level will have to be established. What should be the maximum amount of use permissible before lifeline rates run out? What should be the discount on library membership fees for senior citizens? If a neighborhood has two-thirds of the city's average household income, should its recreation centers charge only two-thirds of the standard? How should the city or county government define disadvantage? By age? By handicap? By income? If
it chooses the last, how will it certify eligibility? These are purely political judgments in the sense that the city or county government must decide how generous it wants to be and to whom.

None of these devices or combinations will produce perfect targeting. Rich people live in poor neighborhoods and vice versa. Not all the elderly are disadvantaged. Some affluent households will use so little service that they never exceed the lifeline level, and some poor households may be so large that they pay the premium rates. Deferred special assessments will constitute a burden when properties eventually turn over. Ad hoc equity protections cannot be sufficiently inclusive nor can they target effectively.

SUPERVOUCHERS

The most comprehensive and accurate method for maintaining access to city services under beneficiary-based finance would be a system of Supervouchers. Such a scheme would make available vouchers that members of disadvantaged groups could use to finance many city services subject to charges or assessment. In essence, each eligible household would be granted an annual lump sum of resources, financed from the jurisdiction's general revenues, with which to purchase charged-for public services. The household could select among the array of available services until it exhausted its grant. The Supervoucher fund would reimburse government departments for services provided to the poor, the elderly, and the handicapped.

The technical feasibility of such a system has not yet been determined. Clearly, its administrative costs would be substantial. It is not clear yet whether its potential benefits are sufficient to offset

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2The Housing Assistance Supply Experiment (HASE), which operated two full scale housing voucher programs, experienced administrative costs of $194 per client for intake (certification of eligibility, etc.) and $115 per client-year for maintenance (1983 dollars). Because of differences between the housing voucher programs and the system described below these costs are only roughly indicative. However they do suggest that the costs of running the Supervoucher system would be high. For a discussion of administrative costs and procedures in the housing voucher programs, see G. Thomas Kingsley, Sheila Nataraj Kirby, and W. Eugene Rizor, "Housing Allowance Program Administration: Findings from the Supply Experiment," The Rand Corporation, N-1846-HUD, May 1982.
these administrative costs or are worth the potential political reactions its financing might provoke.

Supervoucher systems require a deliberate choice on the level of subsidy that will be accorded the disadvantaged, however defined. Money must be set aside to redeem the vouchers. This requires an explicit appropriation by a legislative body. Clearly enough, discounts, deferrals, and the other partial protective devices discussed above operate more like tax expenditures. Fairly high personal exemptions and the earned income allowance in the IRS code (= tax expenditures), even though they benefit the poor, are much less controversial than food stamps (= vouchers). Politicians, who probably reflect the voters they represent, apparently prefer less explicit forms of redistribution.

Several design issues require resolution in the development of Supervoucher system: eligibility, form of payment, and accountability.

The political entity will have to decide who will be eligible for receipt of vouchers. When eligibility is not defined in terms of such easily verifiable characteristics as age, physical handicap, or residence address--if income becomes the criterion--a practical way of screening applicants will be necessary. One way of certifying eligibility is to pass applicants through a specifically designed means test. This approach is used in several different public assistance programs. Advantageously, it allows a precise targeting of the program's resources. The main disadvantage is that means tests are difficult and expensive to administer and thus can consume large amounts of the funds allocated to the program. In addition, unless carefully designed, the testing process can turn into a degrading experience.

An alternative would base decisions about eligibility on the tests and certifications already administered by overlapping agencies of government. Currently people must demonstrate their eligibility for welfare, food stamps, unemployment compensation, health care, and other programs. Supervoucher eligibility could depend on recognition of the results of these other certifications. For example, anyone certified to collect unemployment or who receives welfare would automatically be eligible for Supervouchers as well.
There are several possible forms of payment consistent with Supervouchers. Perhaps the simplest is the issuance of scrip exchangeable for those services subject to charge (the approach used in the food stamp program). A second possibility involves the issuance of credit cards that people could use to "charge" the cost of services regularly financed through exactions from beneficiaries. These charges would be deducted from an individual's or household's Supervoucher account. Reimbursement of the service-providing agency would be based upon the scrip collected or the charge slips submitted to the Supervoucher office.

The system would have to be designed to maintain accountability and minimize the potential for abuse. Overdrafts could be precluded through close supervision of Supervoucher credit balances. Ineligibles could be screened out through spot checks of users.

Accountability problems are probably most resolvable in a system based upon scrip. As long as the scrip cannot easily be duplicated, the system can be policed. Clients could spend only as much scrip as they were issued, and the government departments would receive reimbursement for only as much scrip as they forwarded to the Supervoucher office. Controlling use of the scrip by ineligibles would present more difficult but not insurmountable problems. One possibility involves issuing identity cards along with the scrip and conducting spot checks of customers at point of use. Without such controls, a secondary market in scrip could develop. A political judgment will have to be made on the acceptability of permitting the emergence of underground markets. (No strong attempts at suppression seem apparent in the case of food stamps, certainly.) Selling of scrip of course generates increased well-being for those to whom it is issued although not in the form of designated government services.

No real world examples of the Supervoucher approach appeared in our survey. Nor were time and resources available in our Los Angeles County and Saint Paul studies to permit the experimental testing of such a system. We believe that adequately evaluated experiments or demonstrations of this concept would be highly informative.
PART TWO:

EQUITABLE BENEFIT-BASED FINANCE:

THREE CASE EXAMPLES
In Part Two of this Note we present the results of three different applications of the concept of equitable benefit-based finance. All of the functions examined in the case studies loom large in the operations of local government. Civil courts, emergency medical service, and traffic and lighting operations not only absorb significant fractions of the budgets of municipalities and counties but constitute important points of contact between citizens and government. They differ, however, in some key dimensions. Traffic and lighting service is capital intensive, the court system is labor intensive, and paramedic operations lie somewhere between.

Consumer charges are quite common in paramedic programs. Our study attempts to show how an emergency medical charge system might be installed in a jurisdiction that has formerly not imposed charges. The analysis depends on the experience of jurisdictions that collect from users. For civil courts and traffic and lighting, the concept of beneficiary charges is nearly unknown. In those cases we are exploring new territory.

The data used in the case studies come from many sources. For civil courts no single jurisdiction could provide all of the statistics needed, so our analysis estimates the effects of court fees in a hypothetical amalgam jurisdiction whose characteristics reflect the various places for which we could find court cost and use data. The emergency medical charge system is based on the patterns of geographical demand exhibited by Los Angeles County, California, although charges were based on data from other places. The model organization we designed to utilize a benefit-based finance approach for traffic and lighting functions relies directly on experience in Saint Paul, Minnesota, where Rand worked for over a year helping the city institute finance and management changes.

How can the disadvantaged be protected in the shift to benefit-based finance? What devices are suitable for sustaining vertical equity? Answering such questions required us to investigate how the use of each of these exemplary services varies with socioeconomic position. We also had to devise different equity protection remedies for each service.
In the case of civil courts, described in Sec. IV, forgiveness of fees on the basis of personal income inadequacy is the chosen device. Consequences for low income groups are then evaluated.

In Sec. V, where emergency medical service is covered, an areal based charge system is explored. The effects of such neighborhood rebates on revenues and service provision are described.

The major new forms of beneficiary charge for traffic and lighting services, described in Sec. VI, are special assessments. That section also describes an assessment deferral option designed to appeal to low income homeowners, mainly the elderly.
IV. CIVIL TRIAL FEES AND THE WELFARE OF THE POOR

by
C. Peter Rydell

INTRODUCTION

This analysis examines the provision of civil justice by civil courts. The study covers a wide range of civil cases, including domestic relations, mental health, probate and guardianship, property rights, torts, contracts, and other civil complaints and petitions. It does not cover cases found only in courts of limited jurisdiction, such as small claims courts and municipal courts, nor does it cover cases in courts of appeal.

Existing user fees in civil courts are "filing fees" that pay the costs of processing cases. The potential for new fees lies in "trial fees" that would pay the costs of conducting trials. Filing fees are fairly small (less than $100 per litigant) and are paid by all litigants (but very poor litigants are often exempted). Trial fees would be quite large (averaging more than $1000 per litigant going to trial) and would be paid only by litigants in the small fraction of cases that go to trial (with the possibility that poor litigants would be exempted).

Filing fees are both widespread and widely accepted. Trial fees, however, are rare and controversial. Accordingly, our research assesses the effects of trial fees.

Much of the debate over trial fees consists of statements of principles. Some proponents of trial fees explain that the fiscal limitation movement has reduced tax revenue, so user fees are necessary to preserve the service of settling disputes with trials. Other proponents assert that regardless of the availability of tax revenue, the users of a service should pay for it. Some opponents of trial fees counter with the argument that trial fees would erode the right to a trial guaranteed by the U.S. Constitution. Other opponents point out that all of society benefits from the resolution of civil disputes, so general taxes should pay the costs.
Although those principles are important, and may well be sufficient to decide the issue, they are not discussed here. Rather, the analysis focuses on the economic effects of trial fees: the monetary gains and losses experienced by plaintiffs, defendants, and taxpayers when trial fees are instituted.

We assess the effect of trial fees on poor people by looking at the net benefits received by poor plaintiffs (settlements and trial awards to them less their litigation costs) and the total costs incurred by poor defendants (settlements and trial awards to others plus defendant litigation costs). If net benefits to poor plaintiffs change in the opposite direction from total costs to poor defendants, there is an unambiguous effect on poor people.

The analytical perspective is long run. That is, the situation without trial fees is compared with the situation that would exist if trial fees were implemented and enough time had passed for the civil justice system to have adjusted to the change. In particular, the study estimates the extent to which the number of civil trials decreases as trial fees increase the cost of going to trial. In the short run, the number of trials is determined by the number of judges and court rooms available; however, in the long run, those resources are flexible, and the number of trials varies with the demand for trials by litigants, which in turn varies with the cost of trials to litigants.

For concreteness, specific estimates refer to the Los Angeles Superior Court, with financial amounts expressed in 1982 dollars. However, to construct a complete set of accounts for the civil justice system, it has been necessary to draw upon data from several places and times. Consequently, the resulting estimates only illustrate conditions in Los Angeles (and, by extension, elsewhere). The numbers should be used with caution and with the understanding that they are rough approximations. However, we judge that the estimates are adequate to support qualitative conclusions about the effect of trial fees. That is, they can be used to determine the direction of effects and whether those effects are large or small.
Tables 4.1 through 4.4 present the data on court costs, potential compensation, and lawyer costs used in this analysis. Note that court costs per civil case filed are much smaller than either compensation or lawyer costs. Total court costs average only $350 (Table 4.1), while the average civil case is potentially worth $20,000 (Table 4.2), and total lawyer's costs average $11,300 (Table 4.4). Even looking only at

Table 4.1

TOTAL COURT COSTS FOR CIVIL CASES:
LOS ANGELES COUNTY, CALIFORNIA

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost per Average Case</th>
<th>Cost per Case that Goes to Trial</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pretrial cost</td>
<td>170^a</td>
<td>170^c</td>
</tr>
<tr>
<td>Trial cost</td>
<td>180^b</td>
<td>2700^d</td>
</tr>
<tr>
<td>Total cost</td>
<td>350</td>
<td>2870</td>
</tr>
</tbody>
</table>

SOURCE: Kakalik and Ross (1983), Table C.1, p. 107. That study reported costs for courts in three states and the U.S. District Court. This table draws on the findings for the Los Angeles Superior Court. (The estimates do not cover municipal court cases.)

NOTE: Amounts rounded to the nearest $10.

^a Includes costs of law and motion hearings, pretrial conferences, settlement conferences, and uncontested court trials or hearings.

^b Includes costs of contested court trials and hearings and costs of jury trials.

^c Same as cost per average case because all cases incur pretrial costs.

^d Trials occur in 6.7 percent of the cases in Los Angeles so the $180 cost per average case is $180/0.067 = $2700 per case tried.
Table 4.2
TRIAL AWARDS FOR CIVIL CASES:
COOK COUNTY, ILLINOIS

<table>
<thead>
<tr>
<th>Item</th>
<th>Amount (1982 $) per Case or Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trial award if plaintiff wins</td>
<td>20,000(^a)</td>
</tr>
<tr>
<td>Frequency plaintiff wins</td>
<td>0.52(^b)</td>
</tr>
<tr>
<td>Expected trial award per tried case</td>
<td>10,400(^c)</td>
</tr>
</tbody>
</table>

SOURCE: Shanley and Peterson (1983), Tables 3 and 4, pp. 11 and 13. (The estimates do not cover municipal court cases.)

NOTE: Amounts rounded to nearest $10.
\(^a\) Median trial award. The reported amount of $15,000 in 1979 dollars was converted to 1982 dollars for this study using the CPI growth factor of 1.330.
\(^b\) Frequency plaintiff wins.
\(^c\) Trial award, if win, times the win frequency.

the small number of cases that go to trial (6.7 percent of all cases in the Los Angeles Superior Court), total court costs of $2,870 (Table 4.1) are still much smaller than total lawyer costs of $24,940 (Table 4.4).

The small size of court costs relative to compensation and lawyer costs suggests that shifting court costs from taxpayers to litigants would not greatly affect the civil justice system. The analysis confirms this conjecture, in general. However, under some assumptions the effect on trial frequency is dramatic, and even small percentage changes in benefits can be important to litigants.

UNIFORM TRIAL FEES

Uniform trial fees ("uniform" indicating that plaintiff and defendants split court costs equally) help the nonpoor but hurt the poor. Neither effect is large in percentage terms. Before those distributive results are presented, however, is a discussion of the nature of trial fees.
Table 4.3
PLAINTIFFS AND DEFENDANT’S LAWYER COSTS FOR CIVIL CASES:
UNITED STATES

<table>
<thead>
<tr>
<th>Item</th>
<th>Amount (1982 $) per Case</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plaintiff’s lawyer cost</td>
<td></td>
</tr>
<tr>
<td>Hourly fee cases</td>
<td>3760&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Contingent fee cases</td>
<td>6440&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Average case</td>
<td>5660&lt;sup&gt;c&lt;/sup&gt;</td>
</tr>
<tr>
<td>Defendant's lawyer cost</td>
<td></td>
</tr>
<tr>
<td>Average case</td>
<td>5640&lt;sup&gt;d&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

SOURCE: Trubek et al. (1983). The study sample of over 1600 civil cases covered five federal judicial districts. In each district, cases were randomly selected from the federal district court and at least one state court.

NOTE: Amounts rounded to the nearest $10.

<sup>a</sup>For hourly fee cases, the ratio of plaintiff’s recovery to plaintiff’s lawyer costs is 4.19 for median-size cases (p. 56). The ratio of plaintiff’s net recovery to stakes is 0.600 for median-size cases (p. 60). Hence, (4.19-1.00 = 3.19) times lawyer cost equals 0.6 times stakes, making the ratio of lawyer cost to stakes 0.6/3.19 = 0.188. Applying that ratio to the estimate of the trial award (stakes) in the median-size case ($20,000) yields an estimated $3760 plaintiff’s lawyer cost per case for hourly fee cases.

<sup>b</sup>For contingent fee cases, the cost of the plaintiff’s lawyer to the plaintiff is 33 percent of the settlement or 40 percent of the trial award. Applying these percentages to settlements per case of $18,660 (an estimated $20,000 settlement per case settled times the 0.933 frequency that cases settle without a trial) and trial awards per case of $700 ($10,400 expected trial award per case going to trial times the 0.067 frequency that cases go to trial) yields an estimated $5660, plaintiff’s lawyer cost per case for contingent fee cases. Presumably the contingent fee cases are, on average, more complex than hourly fee cases and hence cost more.

<sup>c</sup>Weighted average of hourly fee cases, 29 percent, and contingent fee cases, 71 percent (p. 54).

<sup>d</sup>Defendant’s lawyers are all paid on an (cont’d)
hourly fee basis. The defendant's lawyer cost for an average case is about 1.5 times the plaintiff's lawyer cost for hourly fee cases (unweighted average of the nine ratios of defendant lawyer costs to plaintiff's lawyer costs--p. 73), making an estimate of defendant's lawyer cost ($3760)(1.5) = $5640.

Table 4.4

TOTAL LAWYER COSTS FOR CIVIL CASES:
UNITED STATES

<table>
<thead>
<tr>
<th>Item</th>
<th>Amount (1982 $)</th>
<th>Cost per Case that Goes to Trial</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cost per Average Case</td>
<td></td>
</tr>
<tr>
<td>Pretrial cost</td>
<td>10,320&lt;sup&gt;a&lt;/sup&gt;</td>
<td>10,320&lt;sup&gt;d&lt;/sup&gt;</td>
</tr>
<tr>
<td>Trial cost</td>
<td>980&lt;sup&gt;b&lt;/sup&gt;</td>
<td>14,620&lt;sup&gt;e&lt;/sup&gt;</td>
</tr>
<tr>
<td>Total cost</td>
<td>11,300&lt;sup&gt;c&lt;/sup&gt;</td>
<td>24,940</td>
</tr>
</tbody>
</table>

NOTE: Amounts are the sum of plaintiff's and defendant's lawyer costs, and are rounded to the nearest $10.
<sup>a</sup>Lawyers for civil cases spend 91.4 percent of their time on pretrial activities (p. 73).
<sup>b</sup>Lawyers for civil cases spend 8.6 percent of their time on "trials" and hearings (p. 73).
<sup>c</sup>Sum of plaintiff's and defendant's lawyer cost in the previous table.
<sup>d</sup>Same as cost per average case because all cases incur pretrial costs.
<sup>e</sup>Trials occur in 6.7 percent of civil cases, so the $970 cost per average case is $980/0.067 = $14,620 per case tried.

Design of Trial Fees

The cost of providing court services for the average civil case in Los Angeles is about $350 (in 1982 dollars). Pretrial costs are slightly less than half that amount (about $170), and trial costs (averaged over all cases filed) are somewhat more than half that amount.
(about $180). The trial cost per case is small because it is an average over all cases, and most cases (93.3 percent) do not go to trial. The few cases that do go to trial (6.7 percent) cost the court system about $2700 each. (The estimates are from Table 4.1.)

Currently in Los Angeles (and other places), filing fees paid by litigants roughly cover the pretrial costs, while taxes cover the trial costs. Under the pressure of declining tax revenue, civil courts are considering charging litigants for trials in addition to charging them for case processing.

The potential effect of trial fees depends upon how they are designed. There are three key design questions: Will poor litigants be exempted from the trial fees? What proportion of trial costs will the fees cover? How will plaintiffs and defendants split the trial fee?

This section analyzes trial fees that do not exempt the poor; the next explores the effect of exempting the poor. Both sections assume that trial fees are set to cover 100 percent of trial costs (an average of $2700 per trial) and that plaintiffs and defendants pay the same amount ($1350 each, on average), except that taxpayers pay the costs of any exemptions for the poor.

The cost of a particular trial would depend on its length. The average civil trial lasts about three days (Administrative Office of the U.S. Courts, 1981, p. 128), so the cost per litigant per day would be about $450. Moreover, the median trial lasts only 1.2 days (same source), so half of the time a litigant would pay less than $550 for a trial.

Analysis of trial fees that cover all trial costs permits determination of the maximum effect trial fees could have. To a good approximation, the effect of partial-cost trial fees can be assessed by prorating the estimated effect of full-cost trial fees. For example, if total costs to defendants increase by $90 per case under full-cost trial fees, then they will increase by about $45 per case under trial fees that cover half of trial costs.

The 50-50 split of trial fees between plaintiff and defendant was selected for analysis because of the precedent set by the "rent-a-judge" program in California. Under that program, litigants who choose not to wait for a trial date can hire a retired judge to conduct a trial for
them, and plaintiff and defendant must split the cost of the judge equally.

Overall Effect of Uniform Trial Fees

Full-cost uniform trial fees have a dramatic and unambiguous effect on taxpayers' costs: They are reduced to zero. However, the effects on plaintiff's net compensation (settlements and trial awards less lawyer and court costs) and defendant's trial costs (settlements and trial awards plus lawyer and court costs) are neither dramatic nor unambiguous.

Rydell (1984) constructed a model of the civil justice system. In that model trial fees affect plaintiffs and defendants in two ways: First, trial fees affect the average settlement size for cases that are settled; second, they affect the frequency with which cases go to trial as opposed to being settled. In this model, settlements (when they occur) equal the average of the plaintiff's "minimum-ask" (expected trial award less expected costs of going to trial) and the defendant's "maximum-offer" (expected trial award plus the expected costs of going to trial). In other words, plaintiff and defendant "split the difference" between the extremes of this bargaining range when determining the size of a settlement. This model implies that uniform trial fees leave the settlement size unchanged. The plaintiff's minimum-ask decreases by the plaintiff's trial fee, and the defendant's maximum-offer increases by the defendant's trial fee. When the two fees are equal, the mid-point of the bargaining range is unaffected.

The trial fee model examines the effect of trial fees on trial frequency using two approaches: first, the game-theory principle advocated by Salant and Rest (1982) and others that defendants take some cases to trial to make false suits unprofitable for plaintiffs. From this perspective, the frequency of trials will tend to decrease when the plaintiff's costs of going to trial are increased by trial fees. In other words, with increased litigation costs, a smaller probability of going to trial will create a sufficient incentive against false suits. The specific estimate with the game-theory model is that uniform trial fees will decrease the frequency of trials from 6.7 percent to 6.3 percent. The 0.4 percentage point drop implies a 6 percent reduction in
the number of civil trials (assuming that the number of cases filed is unaffected by trial fees).

Second, an alternative model was constructed of the effect of trial fees on trial frequency by shifting to the differential-expectations perspective advocated by Danzon and Lillard (1982a) and others. Plaintiffs' and defendants' expectations about the value of a case frequently differ. Consequently, the plaintiff's minimum ask is not always less than the defendant's maximum offer. When the plaintiff's minimum ask exceeds the defendant's maximum offer, no settlement is possible (because there is no bargaining range in which to settle), and the case goes to trial.

From this second perspective, again, the conclusion is that charging litigants trial fees will reduce the frequency of trials. Trial fees will reduce the plaintiff's minimum ask and increase the defendant's maximum offer, making the minimum ask less likely to exceed the maximum offer, and consequently making cases less likely to go to trial. The specific estimate using the differential-expectations model is that uniform trial fees will decrease the frequency of trials from 6.7 percent to 3.7 percent. The 3.0 percentage point drop implies a 45 percent reduction in the number of civil trials (again assuming that the number of cases filed is unaffected by trial fees).

Available evidence does not permit a choice between the game-theory and differential-expectations models of trial frequency. However, the correct model is probably some combination of these two perspectives and therefore the two models' predictions bound the range of possible outcomes. In other words, all estimates of the effect of trial fees are done twice in this analysis. First, trial fees are assumed to have only a small effect on trial frequency (game-theory model). Second, trial fees are assumed to have a large effect on trial frequency (differential-expectations model).

It is unsatisfying not to know which model of trial frequency (or what combination of the two models) is correct. Nevertheless, strong conclusions can be drawn about the effect of trial fees on civil justice, because the two models make the same qualitative prediction (trial fees reduce trial frequency) and trial frequency is only one component in the effect of trial fees.
Applying the models of settlement size and trial frequency permits the conclusion that trial fees increase the settlement amount per case (because the settlement size remains unchanged but settlement occurs more often), decrease the trial award per case (because trial frequency decreases), and decrease lawyer costs per case\(^1\) (again, because trial frequency decreases). Of course, charging litigants trial fees increases the court costs paid by plaintiffs and defendants while reducing the court costs paid by taxpayers. Total court costs decrease because trial frequency decreases.

Combining all those effects of trial fees yields the estimates in Table 4.5. The change in net compensation to plaintiffs is between a decrease of $10 per case (game-theory model) and an increase of $450 per case (differential-expectations model). The change in total cost to defendants is between an increase of $90 (game-theory model) and an increase of $110 per case (differential-expectations model). Those estimated changes are not large in percentage terms (0.1 percent decrease to 3.3 percent increase for net compensation, 0.4 percent increase for total cost).

**Effect on the Poor**

To assess the effect of trial fees on the poor, assume for simplicity that the poor currently pay none of the taxes that support civil courts and consequently get no benefit from the tax savings that would result from supporting courts with trial fees. With respect to poverty, civil cases fall into one of four situations:

- Neither plaintiff nor defendant is poor,
- Only plaintiff is poor,
- Only defendant is poor,
- Both plaintiff and defendant are poor.

\(^1\)In our long-run analysis we assume that plaintiffs' and defendants' lawyers receive fees that just cover their resource costs. To the extent that plaintiffs' lawyers are paid contingent fees, we assume that (in the long run) contingent fee rates are forced by competition to just cover resource costs.
Table 4.5

EFFECT OF UNIFORM TRIAL FEES
ON THE CIVIL JUSTICE SYSTEM

<table>
<thead>
<tr>
<th>Item</th>
<th>Without Trial Fees</th>
<th>Change Caused by Trial Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Amount Per Case (1982 $)</td>
<td>Game-Theory Model</td>
</tr>
<tr>
<td>Plaintiff's Net Compensation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Settlement</td>
<td>18,650</td>
<td>80</td>
</tr>
<tr>
<td>Trial award</td>
<td>700</td>
<td>-40</td>
</tr>
<tr>
<td>Lawyer cost</td>
<td>-5,660</td>
<td>30</td>
</tr>
<tr>
<td>Court cost</td>
<td>-100</td>
<td>-80</td>
</tr>
<tr>
<td>Net compensation</td>
<td>13,590</td>
<td>-10</td>
</tr>
<tr>
<td>Defendant's Total Cost</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Settlement</td>
<td>18,650</td>
<td>80</td>
</tr>
<tr>
<td>Trial award</td>
<td>700</td>
<td>-40</td>
</tr>
<tr>
<td>Lawyer cost</td>
<td>5,640</td>
<td>-30</td>
</tr>
<tr>
<td>Court cost</td>
<td>70</td>
<td>80</td>
</tr>
<tr>
<td>Total cost</td>
<td>25,060</td>
<td>90</td>
</tr>
<tr>
<td>Taxpayer's Total Cost</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Court Cost</td>
<td>180</td>
<td>-180</td>
</tr>
</tbody>
</table>

NOTE: Amounts rounded to nearest $10.

Litigation costs enter negatively when computing net compensation to plaintiffs. Consequently, cost increases caused by trial fees are negative changes to net compensation.

Table 4.6 presents the results of analyzing each of those situations separately, using both models. The rightmost column of the table gives the total benefits yielded by trial fees: the sum of the increases in net compensation to plaintiffs, decreases in total costs to defendants, and decreases in total costs to taxpayers presented in Table 4.5. The other columns of Table 4.6 distribute the overall benefit to
poor people (poor plaintiffs and poor defendants) and nonpoor people (nonpoor plaintiffs, nonpoor defendants, and all taxpayers). For example, the second line of each panel in the table analyzes the situation where only the plaintiff is poor. Using the game-theory model, net benefits to plaintiffs (the poor) decrease by $10 per case and net benefits to defendants and taxpayers (the nonpoor) increase by $90 per case ($180 tax savings less $90 increase in defendant costs).

Under the game-theory model, trial fees always hurt the poor; and under the differential-expectations model, trial fees sometimes hurt the poor. But under either model, trial fees always help the nonpoor. The overall benefit is positive, because trial fees reduce trial frequency, which in turn reduces litigation costs.

The evidence in Table 4.6 supports three conclusions. First, uniform trial fees generate net benefits across all people (because a trial fee reduces trial frequency, which in turn reduces litigation costs). Second, uniform trial fees unambiguously help nonpoor people (the savings to taxpayers—assuming only the nonpoor pay taxes—outweigh increases in costs to nonpoor defendants and any decreases in compensation to nonpoor plaintiffs). Finally, trial fees can hurt the poor; they always hurt the poor under the game-theory model, and they sometimes hurt the poor under the differential-expectations model (poor plaintiffs are hurt under the first model but not under the second; poor defendants are hurt under both models). However, the harm done to poor people is very small. The $10 per case decline in net compensation for poor plaintiffs (see Table 4.5) is only 0.1 percent of the average net compensation, and the $110 per case increase in cost for poor defendants is only 0.4 percent of the average cost.

EXEMPTING THE POOR

When user fees hurt the poor, the standard cure is to exempt the poor from the fees. The usual result is that the poor are then held harmless. Exempting the poor from trial fees would certainly prevent the slight harm that would occur without the exemptions. However, it would do more than hold them harmless, it would actually help them substantially. The source of the additional gains for the poor is the increased bargaining power that poor litigants have when they pay no
Table 4.6
EFFECT OF UNIFORM TRIAL FEES ON INCOME DISTRIBUTION

<table>
<thead>
<tr>
<th>Type of Case</th>
<th>Poor People</th>
<th>Nonpoor People</th>
<th>All People</th>
</tr>
</thead>
<tbody>
<tr>
<td>Game-Theory Model</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neither litigant poor(^a)</td>
<td>0</td>
<td>80</td>
<td>80</td>
</tr>
<tr>
<td>Only plaintiff poor(^b)</td>
<td>-10</td>
<td>90</td>
<td>80</td>
</tr>
<tr>
<td>Only defendant poor(^c)</td>
<td>-90</td>
<td>170</td>
<td>80</td>
</tr>
<tr>
<td>Both litigants poor(^d)</td>
<td>-100</td>
<td>180</td>
<td>80</td>
</tr>
<tr>
<td>Differential Expectations Model</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neither litigant poor(^a)</td>
<td>0</td>
<td>520</td>
<td>520</td>
</tr>
<tr>
<td>Only plaintiff poor(^b)</td>
<td>450</td>
<td>70</td>
<td>520</td>
</tr>
<tr>
<td>Only defendant poor(^c)</td>
<td>-110</td>
<td>630</td>
<td>520</td>
</tr>
<tr>
<td>Both litigants poor(^d)</td>
<td>340</td>
<td>180</td>
<td>520</td>
</tr>
</tbody>
</table>

SOURCE: Table 4.5

\(^a\) Nonpoor benefit = increase in plaintiff's net compensation plus taxpayer's savings plus decrease in defendant's total costs.

\(^b\) Poor benefit = increase in plaintiff's net compensation. Nonpoor benefit = taxpayer's savings plus decrease in defendant's total costs.

\(^c\) Poor benefit = decrease in defendant's total cost. Nonpoor benefit = increase in plaintiff's net compensation plus taxpayer's savings.

\(^d\) Poor benefit = increase in plaintiff's net compensation plus decrease in defendant's total costs. Nonpoor benefit = taxpayer's savings.

trial fees but their nonpoor opponents do. The increase in bargaining power is large enough so that, on average, the poor not only capture all the overall savings from trial reductions but also, in effect, receive an income transfer from nonpoor litigants. In other words, in contrast to uniform trial fees, which help the nonpoor at the expense of the poor, trial fees that exempt the poor help them at the expense of the nonpoor.
Incidence of Poor Litigants

Neither court records nor the literature on civil justice contain much information on the proportion of civil litigants who are too poor to be expected to pay trial fees. About all that is known is that at least 5 percent of civil litigants are too poor to pay, and that plaintiffs are more often poor than defendants.

The 5 percent figure comes from the proportion of Los Angeles civil litigants that plead poverty before a designated judicial officer and are excused from paying filing fees. However, presumably a considerably larger proportion of litigants would need exemption from trial fees because full-cost trial fees would be about 20 times larger than filing fees.

The judgment that plaintiffs are more usually poor than defendants comes from the distribution of types of litigants in Cook County, Illinois, and partial information on their occupations. Table 4.7 shows that plaintiffs in civil cases are almost always individuals, but one-third of defendants are institutions rather than individuals. Assume that only individuals can be too poor to pay trial fees. The incidence of low income occupations is 1.7 times higher among plaintiffs than among the general population (26 percent of plaintiffs but only 15 percent of the general population are unskilled or service workers (see Table 4.8). Unfortunately, comparable information is not available for defendants.

Inadequate information on the incidence of poor litigants makes it possible to measure the effect of exempting the poor from trial fees. However, it is possible to analyze the four situations where neither, one or the other, or both litigants are poor. Actually, only the second and third situations require analysis, because in the first situation there are no poor litigants (both litigants are nonpoor) and in the fourth situation there are no trial fees (both litigants are exempted).
Table 4.7

COMPOSITION OF PLAINTIFFS AND DEFENDANTS IN CIVIL TRIALS:
COOK COUNTY, ILLINOIS, 1965-1979

<table>
<thead>
<tr>
<th>Type of Litigant</th>
<th>Percent Distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Plaintiffs</td>
</tr>
<tr>
<td>Individuals</td>
<td>96.7</td>
</tr>
<tr>
<td>Business/corporations</td>
<td>3.0</td>
</tr>
<tr>
<td>Government/municipalities</td>
<td>0.3</td>
</tr>
<tr>
<td>Nonprofit organizations/hospitals</td>
<td>0.0</td>
</tr>
<tr>
<td>All types</td>
<td>100.0</td>
</tr>
</tbody>
</table>

SOURCE: Chin and Peterson, 1984, Table 2.5.

Table 4.8

OCCUPATIONS OF INDIVIDUAL PLAINTIFFS IN CIVIL TRIALS:
COOK COUNTY, ILLINOIS, 1965-1979

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Individual Plaintiffs in Civil Trials</th>
<th>General Population in County</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professional/technical</td>
<td>13.0</td>
<td>14.7</td>
</tr>
<tr>
<td>Managerial/admin.</td>
<td>6.8</td>
<td>7.5</td>
</tr>
<tr>
<td>Sales</td>
<td>6.1</td>
<td>7.5</td>
</tr>
<tr>
<td>Clerical</td>
<td>14.4</td>
<td>23.5</td>
</tr>
<tr>
<td>Foremen/craftsmen</td>
<td>12.9</td>
<td>13.7</td>
</tr>
<tr>
<td>Operatives</td>
<td>21.2</td>
<td>18.1</td>
</tr>
<tr>
<td>Unskilled workers</td>
<td>6.6</td>
<td>4.4</td>
</tr>
<tr>
<td>Service workers</td>
<td>19.0</td>
<td>10.6</td>
</tr>
<tr>
<td>All occupations</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

SOURCE: Chin and Peterson, 1984, Table 2.6.
NOTE: The occupational distribution of the general population is for 1970.
Effect of Exempting Poor Plaintiffs

When poor plaintiffs sue nonpoor defendants, and only the latter pay trial fees (but still only one-half the trial cost), then the model shows that plaintiffs gain bargaining power, and settlement size increases. The plaintiff's minimum ask remains unchanged (because poor plaintiffs pay no trial fee) and the defendant's maximum offer increases (to reflect the nonpoor defendant's trial fee). The midpoint of the bargaining range that determines settlement size therefore increases.

The changed settlement size dominates the effect of trial fees that exempt the poor. However, changed trial frequency also contributes to the net effect. Under the game-theory model, trial frequency changes extremely little; but under the differential expectations model, trial frequency decreases from 6.7 percent to 5.0 percent. The resultant savings in litigation costs add to the poor plaintiff's benefit from receiving larger settlements and partially offset the nonpoor defendant's loss from paying larger settlements.

The net result—shown in Table 4.9—is that poor plaintiffs gain substantial benefits ($610 per case under the game-theory model and $930 per case under the differential expectations model). In contrast, the nonpoor defendants lose substantial benefits ($700 per case under the game-theory mode and $760 per case under the differential-expectations model).

Effect of Exempting Poor Defendants

When nonpoor plaintiffs sue poor defendants, and only the former pay trial fees, then the model shows that plaintiffs lose bargaining power, and settlement sizes decrease. In addition, both the game-theory and differential-expectation models predict that trial frequency will decrease (from 6.7 to 6.3 percent in the first instance and from 6.7 to 5.0 percent in the second instance).

The net result—shown in Table 4.10—is that nonpoor plaintiffs lose substantial benefits ($650 per case under the game-theory model and $440 per case under the differential-expectations model), because the losses in gross compensation are only partly offset by decreased litigation costs. In contrast, the poor defendants gain substantial
Table 4.9

EFFECT OF DEFENDANT TRIAL FEE ON THE CIVIL JUSTICE SYSTEM

<table>
<thead>
<tr>
<th>Item</th>
<th>Amount per case (1982 $)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Without Trial Fees</td>
</tr>
<tr>
<td>Settlement</td>
<td>18,650</td>
</tr>
<tr>
<td>Trial award</td>
<td>700</td>
</tr>
<tr>
<td>Lawyer cost</td>
<td>-5,660</td>
</tr>
<tr>
<td>Court cost</td>
<td>-100</td>
</tr>
<tr>
<td>Net compensation</td>
<td>13,590</td>
</tr>
</tbody>
</table>

Plaintiff's Net Compensation

<table>
<thead>
<tr>
<th>Item</th>
<th>Amount per case (1982 $)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Settlement</td>
<td>18,650</td>
</tr>
<tr>
<td>Trial award</td>
<td>700</td>
</tr>
<tr>
<td>Lawyer cost</td>
<td>5,640</td>
</tr>
<tr>
<td>Court cost</td>
<td>70</td>
</tr>
<tr>
<td>Total cost</td>
<td>25,060</td>
</tr>
</tbody>
</table>

Defendant's Total Cost

<table>
<thead>
<tr>
<th>Item</th>
<th>Amount per case (1982 $)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Court Cost</td>
<td>180</td>
</tr>
</tbody>
</table>

Taxpayer's Total Cost

NOTE: Amounts rounded to nearest $10.

benefits ($630 per case under the game-theory model and $810 per case under the differential-expectations model), because both compensation expenses and litigation costs decrease.

Effect on the Poor

Table 4.11 revises Table 4.6 to reflect the consequences of exempting the poor from trial fees. The estimated benefits when neither litigant is poor are the same as in the earlier table, because there are then no exemptions. There are no benefits when both litigants are poor, because both litigants are then exempted from trial fees.
### Table 4.10

**EFFECT OF PLAINTIFF TRIAL FEE ON THE CIVIL JUSTICE SYSTEM**

<table>
<thead>
<tr>
<th>Item</th>
<th>Amount Per Case (1982 $)</th>
<th>Change Caused by Trial Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Without Trial Fees</td>
<td>Game-Theory Model</td>
</tr>
<tr>
<td>Plaintiff's Net Compensation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Settlement</td>
<td>18,650</td>
<td>-560</td>
</tr>
<tr>
<td>Trial award</td>
<td>700</td>
<td>-40</td>
</tr>
<tr>
<td>Lawyer cost</td>
<td>-5,660</td>
<td>30</td>
</tr>
<tr>
<td>Court cost</td>
<td>-100</td>
<td>-80</td>
</tr>
<tr>
<td>Net compensation</td>
<td>13,590</td>
<td>-650</td>
</tr>
<tr>
<td>Defendant's Total Cost</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Settlement</td>
<td>18,650</td>
<td>-560</td>
</tr>
<tr>
<td>Trial award</td>
<td>700</td>
<td>-40</td>
</tr>
<tr>
<td>Lawyer cost</td>
<td>5,640</td>
<td>-30</td>
</tr>
<tr>
<td>Court cost</td>
<td>70</td>
<td>0</td>
</tr>
<tr>
<td>Total cost</td>
<td>25,060</td>
<td>-630</td>
</tr>
<tr>
<td>Taxpayer's Total Cost</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Court Cost</td>
<td>180</td>
<td>-100</td>
</tr>
</tbody>
</table>

**SOURCE:** Rydell, 1984, Tables A.6 and A.8.

**NOTE:** Amounts rounded to nearest $10.

In both situations where only one litigant is poor, the effects of trial fees with exemptions differ greatly from those of uniform trial fees. In Table 4.11, trial fees that exempt the poor help them substantially, at the expense of the nonpoor; whereas in Table 4.6 uniform trial fees hurt the poor a little and helped the nonpoor.

### CONCLUSIONS

Charging civil litigants, rather than taxpayers, for the court costs of civil trials would have surprisingly small effects on the overall performance of the civil justice system. The resultant percentage changes in net compensation to plaintiffs and total cost to
Table 4.11
EFFECT OF TRIAL FEES THAT EXEMPT THE POOR ON INCOME DISTRIBUTION

<table>
<thead>
<tr>
<th>Type of Case</th>
<th>Poor People</th>
<th>Nonpoor People</th>
<th>All People</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Game-Theory Model</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neither litigant poor</td>
<td>0</td>
<td>80</td>
<td>80</td>
</tr>
<tr>
<td>Only plaintiff poor</td>
<td>610</td>
<td>-610</td>
<td>0</td>
</tr>
<tr>
<td>Only defendant poor</td>
<td>630</td>
<td>-550</td>
<td>80</td>
</tr>
<tr>
<td>Both litigants poor</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Differential-Expectations Model</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neither litigant poor</td>
<td>0</td>
<td>520</td>
<td>520</td>
</tr>
<tr>
<td>Only plaintiff poor</td>
<td>930</td>
<td>-650</td>
<td>280</td>
</tr>
<tr>
<td>Only defendant poor</td>
<td>610</td>
<td>-330</td>
<td>280</td>
</tr>
<tr>
<td>Both litigants poor</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

SOURCE: Tables 4.9 and 4.10.

NOTE: Amounts rounded to nearest $10.

\(^a\) Nonpoor benefit = increase in plaintiff's net compensation plus taxpayer's savings plus decrease in defendant's total costs.

\(^b\) Poor benefit = increase in plaintiff's net compensation. Nonpoor benefit = taxpayer's savings plus decrease in defendant's total costs.

\(^c\) Poor benefit = decrease in defendant's total cost. Nonpoor benefit = increase in plaintiff's net compensation plus taxpayer's savings.

\(^d\) Poor benefit = increase in plaintiff's net compensation plus taxpayer's savings plus decrease in defendant's total costs.

defendants, under various fee structures and assumptions about court system behavior, are all less than 7 percent. The percentage changes in court costs paid by the taxpayer are, of course, substantial (see Table 4.12).

The reasons for the small effects of trial fees are that only a small proportion of civil cases actually go to trial, and that a large proportion of litigation costs are due to lawyers' fees. Less than a
Table 4.12
EFFECT OF TRIAL FEES ON PLAINTIFFS, DEFENDANTS AND TAXPAYERS

<table>
<thead>
<tr>
<th>Who Pays Fee</th>
<th>Plaintiff's Net Compensation</th>
<th>Defendant's Total Cost</th>
<th>Taxpayer's Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Game-Theory Model</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Both litigants</td>
<td>-0.1</td>
<td>0.4</td>
<td>-100.0</td>
</tr>
<tr>
<td>Defendant only</td>
<td>4.5</td>
<td>2.8</td>
<td>-50.0</td>
</tr>
<tr>
<td>Plaintiff only</td>
<td>-4.8</td>
<td>-2.5</td>
<td>-61.1</td>
</tr>
<tr>
<td>Differential-Expectations Model</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Both litigants</td>
<td>3.3</td>
<td>0.4</td>
<td>-100.0</td>
</tr>
<tr>
<td>Defendant only</td>
<td>6.8</td>
<td>3.0</td>
<td>-55.6</td>
</tr>
<tr>
<td>Plaintiff only</td>
<td>-3.2</td>
<td>-2.4</td>
<td>-61.1</td>
</tr>
</tbody>
</table>

SOURCE: Tables 4.5, 4.9, and 4.10.

tenth of civil cases actually go to trial, so the average outcome of civil litigation is dominated by the benefits and costs of settlements rather than trials. For cases that do go to trial, the cost to litigants is the sum of lawyer fees and court fees; in a typical civil case, lawyers’ fees greatly exceed even full-cost trial fees.

Trial fees generate net benefits overall, because trial frequency decreases (causing savings in litigation costs) as litigants seek to avoid the trial fees by substituting settlements for trial verdicts. The amount by which trial fees reduce trial frequency is known only crudely, however. The model built on a game-theory perspective predicts a small effect (uniform trial fees would change trial frequency from the current 6.7 percent to a slightly lower 6.3 percent). The model built on a differential-expectations perspective predicts a large effect (uniform trial fees would change trial frequency from the current 6.7 percent to a considerably lower 3.7 percent). These two predictions probably bound the true effect of trial fees on trial frequency, and all the analyses have been done twice to show lower and upper limits on the overall effects of trial fees.
Although trial fees generate net benefits, those benefits are not distributed evenly between poor people (plaintiffs or defendants) and nonpoor people (plaintiffs, defendants, and all taxpayers). The savings to taxpayers (assumed to be all nonpoor) offset the trial fees paid by nonpoor litigants, so nonpoor people as a whole are helped by uniform trial fees. The poor pay few taxes, however, so they do not get any tax savings to offset trial fees. However, as Table 4.13 shows, they also have small harm done by uniform trial fees: Poor defendants have their total cost increased by 0.4 percent, and poor plaintiffs can have their net compensation reduced by 0.1 percent.

Trial fees that exempted the poor would provide them with substantial benefits. Poor defendants would have their total cost reduced by 2.4 to 2.5 percent and poor plaintiffs would have their net compensation increased by 4.5 to 6.8 percent (again, see Table 4.13). These gains would come at the expense of their nonpoor opponents, as the differential trial fee increased the bargaining power of the poor in settlement negotiations.

Table 4.13

EFFECT OF TRIAL FEES ON POOR LITIGANTS

<table>
<thead>
<tr>
<th>Type of Fee</th>
<th>Percent Change Caused by Trial Fee</th>
<th>Net Compensation to Poor Plaintiffs</th>
<th>Total Cost to Poor Defendants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Game-Theory Model</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Uniform</td>
<td>-0.1</td>
<td>0.4</td>
<td>-2.5</td>
</tr>
<tr>
<td>Exempt poor</td>
<td>4.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Differential-Expectations Model</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Uniform</td>
<td>3.3</td>
<td>0.4</td>
<td></td>
</tr>
<tr>
<td>Exempt poor</td>
<td>6.8</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SOURCE: Tables 4.5, 4.6 and 4.11.
These conclusions are strengthened by two conservative assumptions made during the study. First, in the model of settlement size, settlements that occur are the equal weighted average of the plaintiff's minimum ask and the defendant's maximum offer. Although the equal weights are a common-sense specification of the model, the only available empirical study of the question (Danzon and Lillard, 1982b) found that for medical malpractice claims the weight on the maximum offer should be greater than the weight on the minimum ask. To the extent that result generalizes to all civil cases, this model underestimates the amount by which trial fees increase settlement compensation. That, in turn, implies that the model underestimates the positive effects of trial fees on poor people because there are more poor plaintiffs than poor defendants. Second, poor people are assumed to pay no taxes and consequently receive no tax savings when trial fees are substituted for tax revenue to pay court costs. To the extent the poor do receive some tax savings, the harm done to them by uniform trial fees is less than estimated, and the benefit to them of trial fees that exempt the poor is greater.

The trial fee plans analyzed here assume that the fees are set to cover all court costs and that if poor litigants are exempted, they pay no fee at all. Alternative plans are clearly possible. Fees could be set to cover only part of court costs, and the poor could receive only partial exemptions.

As Table 4.14 shows, civil trials in Los Angeles currently cost taxpayers about $12.2 million per year (in 1982 dollars). If full-cost uniform trial fees were charged, then fewer cases would go to trial, and the court costs of civil trials would decline to roughly $9.2 million per year. Plaintiffs and defendants would split that cost equally, each paying $4.6 million. If the poor were exempted from trial fees, then the reduction in trial frequency would be slightly less, and the court costs of civil trials would decline to roughly $9.5 million per year. Nonpoor plaintiffs and defendants would pay $8.3 million (plaintiffs $3.6 million and defendants $4.7 million) and exemptions for the poor would cost taxpayers about $1.2 million.

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2Estimate based on averaging the results from the two models.
Table 4.14

EFFECT OF TRIAL FEES ON THE NUMBER AND Cost
OF CIVIL TRIALS IN THE LOS ANGELES SUPERIOR COURT

<table>
<thead>
<tr>
<th>Type of Fee</th>
<th>Number of Civil Trials per Year</th>
<th>Annual Cost of Civil Trials (millions of 1982 dollars)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Plaintiff Fees</td>
</tr>
<tr>
<td>Game-Theory Model</td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>4,510</td>
<td>0.0</td>
</tr>
<tr>
<td>Uniform</td>
<td>4,240</td>
<td>5.7</td>
</tr>
<tr>
<td>Exempt poor</td>
<td>4,310</td>
<td>4.4</td>
</tr>
<tr>
<td>Differential-Expectations Model</td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>4,510</td>
<td>0.0</td>
</tr>
<tr>
<td>Uniform</td>
<td>2,490</td>
<td>3.4</td>
</tr>
<tr>
<td>Exempt poor</td>
<td>2,690</td>
<td>2.7</td>
</tr>
<tr>
<td>Average</td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>4,510</td>
<td>0.0</td>
</tr>
<tr>
<td>Uniform</td>
<td>3,365</td>
<td>4.6</td>
</tr>
<tr>
<td>Exempt poor</td>
<td>3,500</td>
<td>3.6</td>
</tr>
</tbody>
</table>

SOURCE: Annual number of trials, when there are no trial fees, from the Judicial Council Summary, Los Angeles Superior Court, Civil Proceedings, FY 1983. Annual cost per trial from Table 1. Effect of trial fees on trial frequency from Tables A.5 and A.7 in Rydell (1984), Appendix A.

NOTE: The analysis in this table assumes that in three-fourths of civil cases neither the plaintiff nor the defendant is poor, and that in one-fourth of civil cases the plaintiff is poor and the defendant is not poor.
BIBLIOGRAPHY, SEC. IV


V. USER FEES FOR EMERGENCY MEDICAL SERVICES

by

James P. Stucker

INTRODUCTION

Unlike the courts, fire, and police, paramedic services, or more broadly speaking emergency medical services (EMS), do not account for a major portion of local government budgets. They are commonly offered by local governments throughout the nation and are provided and financed in several ways.

Many cities, counties, and special districts provide rescue, paramedic, and ambulance services. Some provide it directly using their own personnel and equipment, others band together with nearby jurisdictions to produce it, and still others contract for its provision with private companies. Often these services are financed by tax revenues and then provided free of charge to those in need, but direct charges of one type or another are often levied.

This section describes several of the more exemplary publicly organized EMS programs operating in late 1983;¹ then we examine the characteristics of EMS users and discuss how the users might be affected by user fees with or without built-in equity protection.

Emergency medical service includes all pre-hospital aspects of the identification, treatment, and transportation of victims of sudden and severe illness and trauma. EMS services differ from community to community but most offer on-site first aid services followed by transportation to hospitals or trauma centers. Emergency medical technicians (EMTs) and paramedics provide the initial aid.

The emergency medical system provides a first line of defense against sudden death or severe disability and is designed primarily to assist persons who cannot call for the help of their choice. Supporters of public provision of EMS contend that such services are best supplied by public personnel such as firefighters who regularly perform fire

¹ There is no attempt to document all of the delivery methods for EMS, particularly the relationships between private ambulance services and the presence or absence of public EMS.
suppression and prevention activities and can cost efficiently perform
the dual role.

Supporters of tax funding for EMS contend that (1) it is a
protective service, much like fire and police, in which it is difficult
to determine just who will need the service next and, hence, joint
funding by all is appropriate; (2) many users are poor or otherwise
disadvantaged persons who cannot directly pay for the services they
require; and (3) in any case, most patients are under moderate to severe
stress when service is provided and at such times request for payment,
or the refusal of treatment if payment is not tendered, is inhumane.

Supporters of user fees for EMS contend that (1) services are
allocated more efficiently when users are charged directly; (2) most
users can afford to pay without undue hardship, and those who cannot may
easily seek and receive exemption; and (3) EMS as a medical service is
often reimbursable by third-party payers, and local tax subsidization
benefits mainly the insurers and the state and federal governments.

Some of these issues involve moral considerations that are beyond
the scope of this study, but others involve the determination of facts,
considerations of efficiency, and statements of public policy. The
objectives of this section are to (1) describe how a number of exemplary
local jurisdictions provide and finance EMS services; (2) investigate
the types of services that they provide and the characteristics of the
patients requiring or requesting those services; (3) discuss the
feasibility, appropriateness, and revenue potential of user fees; and
(4) assess the consequences of built-in equity protection.

THE PROVISION OF EMS

Police and fire personnel have been performing public-service
rescues for centuries, but the modern concept of emergency medical
service apparently originated in Europe in the 1960s with Dr. Pantridge
of Belfast, Ireland, pioneering the use of prehospital coronary care.
Soon Pantridge's idea of using physicians in the field to provide heart
care was adopted in the United States. Columbus, Ohio, originated
paramedics as we know them today when fire-rescue personnel were given
additional training and made into the backbone of the service.²

²Williams and Shavlik, p. 273.
Paramedics and EMTs

Paramedics and other EMTs supply most EMS services, and their salaries, benefits, training, and equipment account for the majority of EMS costs. A paramedic is an advanced EMT who supplies immediate, on-site care to persons who have been injured or afflicted in out-of-hospital environments. Paramedics are better trained than other EMTs and may, in emergency situations, initiate advanced life-saving procedures without outside guidance, although usually their actions are directed by an emergency-room physician with whom they maintain communications and under whose authority they operate.

EMT-1s are trained in local institutions under state and federal guidelines and registered by municipal, county, or state organizations. Training involves a standard Department of Transportation 81 hour program, basically in providing first aid.

Paramedics, the highest qualified emergency personnel, are required to have at least of 500 hours of didactic, clinical, and internship training, but many have substantially more; Los Angeles County, for example, requires 960 hours. A paramedic is authorized to render a wide variety of EMS, including drugs and other advanced techniques. Paramedics normally operate under the guidance and authority of a base physician, but when contact cannot be established or maintained and a delay in treatment would jeopardize the victim's life, they may be authorized to institute certain limited treatments on their own.3 Although paramedics provide many advanced emergency services, most of their specialized training is associated with the treatment of patients with suspected myocardial infarction and cardiac arrest.

The literature review uncovered documentation of several EMS programs and a telephone survey provided information on several others. The programs in Los Angeles County and Saint Paul, those described in

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3In California a paramedic usually communicates with an authorized registered nurse who is qualified as both a Paramedic Liaison Nurse and a Mobil Intensive Care Nurse. She is supervised by a Paramedic Liaison Physician, with the entire operation under the supervision of the Base Station Physician. If communication with the base hospital is not established, no advanced procedures are administered. The paramedic can, however, use defibrillation equipment, start an IV, establish an airway, or apply a mass suit if he believes the situation warrants.
the literature, and those recommended by the telephone survey respondents were mostly organized with the public jurisdiction itself providing the service (the public agency model) or with the local jurisdiction establishing an independent agency that used a private contractor (the public utility model).  

Public Provision of EMS

The most common way to provide EMS is for a local jurisdiction to train some of its employees, usually firefighters, in basic and advanced life support techniques and to provide them with rescue vehicles—cars, vans, ambulances, or fire engines. Until recently most of the larger and more innovative programs were of this type.

Los Angeles County. The County of Los Angeles Fire Department provides emergency services for over 2 million residents in both the unincorporated area of the county and, through special districts and direct contracting arrangements, in 44 cities within the county. In 1981 it operated 128 fire stations and 139 engine companies and employed nearly 2,300 uniformed personnel.

All Los Angeles County Fire Fighters are certified EMT-1s; about 375 are paramedics, which requires 960 hours of training. County health officials estimate the cost of paramedic training is about $25,000 per graduate.

In response to a rescue call, L.A. County dispatches both an engine unit and a paramedic unit. Because the engine units are more numerous and more widely dispersed, they typically arrive at the scene first and provide initial treatment. If advanced life support (ALS) is not required the engine unit can cancel the paramedic call.

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*Many local government jurisdictions have no local EMS service; others contract with franchise, or otherwise encourage the operating of private ambulance companies. This study discusses only jurisdictions that provide active public support and organization.

*Material on the L.A. County EMS is based on interviews with officials from the Fire Department and the Health Services Department of Los Angeles County, and on analyses of County budgets and incidental reports.

*Daniel Freeman Hospital trains private paramedics and public trainees from outside Los Angeles County. Most California EMTs obtain their initial training in the state community college system.
L.A. County paramedics do not transport patients; they respond in emergency rescue trucks rather than ambulances. All transportation is done by private ambulance. In October 1982, the L.A. County Fire Department took over the dispatch of private ambulances and now dispatches all ambulances within the area it serves.

The county offers its EMS services free of charge so it has no need to offer special provisions for the elderly, poor, or disabled.

**Saint Paul.** During fiscal 1983 the Saint Paul Fire Department responded to 13,850 EMS calls, assisted 3,265 persons, and assisted and transported 8,565 more. These 11,830 acts brought in over $500,000 in revenue. In addition, Saint Paul EMS personnel administered cardiopulmonary resuscitation (CPR) during about 2 percent of their responses. The department operates seven paramedic units and three Basic Life Support (BLS) units, with two paramedic units in reserve. Most EMS runs now utilize modular ambulances with a captain, a driver, and two paramedics.

Saint Paul provides its EMS by means of a tiered system, using both firemen and EMTs. The city has 435 firemen, of which 135 are EMT-1s and 85 more are paramedics. The latter have at least 1,000 hours of training and eight weeks of internship. When a request for aid comes in, paramedics respond if the situation is defined as at least potentially life threatening. Fire officials claim the average response time of the Fire Department to EMS calls is between 3 and 3-1/2 minutes.

**Burlington, Iowa.** The Burlington Fire Department provides local EMS services. It is organized as a public service but charges substantial user fees. The department employs 48 firefighters, 27 of whom hold an extra certification: 16 as EMT-As, four as EMT-1s, and seven as paramedics. All of the personnel also perform full duties as firemen. Burlington has one specialized rescue truck. The service area for EMS services is the city of about 33,000 people. Last year the department responded to over 1,300 ambulance calls.

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7 The information on Saint Paul was obtained from examination of city budgets and from information supplied by Steve Conroy, Fire Chief; Robert Stober, Assistant Chief; and Tim Fuller, Chief of Emergency Paramedic Services.

8 The material for the Burlington EMS is based on a telephone interview with Linda Schulte, secretary to the chief, on April 5, 1983.
Fees are set by the city council and the Des Moines County Board based on the recommendations of the department. The city Finance Department does the billing and collection. They estimate that approximately 90 percent of the billings are collected; the remainder are referred to a local collection agency. Fees account for about two-thirds of the Ambulance Service revenue, but in 1982 EMS and ambulance services still required a subsidy of $107,000.

**The Public-Utility Model**

The public utility model represents a rather new method for EMS delivery that attempts to combine the cost-consciousness and efficiency incentives of privately provided EMS with the social control and responsiveness of public EMS. A series of articles in the May, June, and July issues of the *Journal of Emergency Medical Service* (JEMS) describe it in detail. Three current programs organized on this model are summarized below.

**Fort Wayne/Allen County, Indiana.** A joint city-county agency called the Three River Ambulance Authority provides for EMS service in the Fort Wayne/Allen County area. The Authority is governed by a Board of Directors, composed of members from both the city and county and a local physician who chairs the medical control group known as the EMS Foundation Inc. The Authority sets business policy and fee levels; the Foundation establishes medical protocols and governing rules and regulations. This arrangement generally reflects the business and operational structure of the public utility model of ambulance service delivery. The Authority furnishes vehicles, on-board equipment, communications equipment, offices, and maintenance facilities. It also does billing and collections. The contractor is expected to "furnish dispatching services, field operations, equipment maintenance, and related support services as necessary to the courteous, professional and reliable delivery of ambulance services which meet or exceed the

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This description of the Fort Wayne program is based on an interview with Steve Brown, Director.
clinical and response time standards" set by the Authority.\footnote{Quotation from the Invitation to Bid that appeared in the April 1983 issue of The Journal of Emergency Medical Services, p. 4.} The contractor currently employs about 35 EMTs, most of them paramedics, and plans eventually to employ only paramedics. The total catchment area has a population of approximately 300,000; there were between 15,000 and 16,000 calls in 1982.

The contractor receives a set fee each month for providing a minimum level of EMS and ambulance service. A schedule of additional reimbursements compensates the contractor if more than the minimum levels are demanded. The Authority is financially independent but currently receives a city subsidy of around $300,000.

The total system budget is approximately $1.6 million including the contractor's operating costs. Direct fees charged to users now cover about 75 percent of the budget, the remainder is subsidized by the city and county.

Kansas City, Missouri.\footnote{This description of the Kansas City program is based on an interview with Mark S. Wozmak, Executive Director.} The City Council of Kansas City, Missouri, created a not-for-profit public trust, the Metropolitan Ambulance Services Trust (MAST), to oversee local EMS in 1981. MAST is an independent organization governed by a volunteer Board of Trustees composed of City Council representatives, community businessmen, physicians, hospital administrators, and attorneys. MAST owns all of the equipment and facilities. It markets services and performs patient billing functions.

The Health Department is responsible for inspecting vehicles and equipment, and administering examinations to the paramedics and EMTs certifying their knowledge of medical protocols and geography. The Emergency Physicians Advisory Board advises the Director of Health, develops medical and dispatch protocols, and periodically audits the medical care provided by the EMS system.

MAST has contracted with Medevac Midamerica, Inc., a private for-profit firm (a subsidiary of Medevac, Inc.) to provide the operations management for the system. Medevac is responsible for providing all emergency and nonemergency EMS for Kansas City, under contract to MAST.
Medevac currently employs between 80 and 100 ENTS and paramedics (full and part time) in Kansas City, servicing a population of approximately 450,000. Last year MAST received approximately 30,000 calls for service and treated and transported approximately 22,000 patients. MAST utilizes a computer to schedule the paramedic units most efficiently by means of a flexible system status plan, which calls for the deployment of paramedic units throughout the city in relationship to the locations of calls and call volume. Additionally, MAST utilizes a computerized billing system to generate itemized bills for service. MAST's budget is currently $4.5 million, with a city subsidy of approximately $1 million.

Tulsa, Oklahoma.\textsuperscript{12} Like Kansas City and Fort Wayne, Tulsa's EMS program is administered by a trust authority. Authority is vested by statute in a quasi-independent body—the Emergency Medical Services Authority (EMSA)—run by a special EMS board whose members are appointed by the City Commission. The EMSA finances and owns all equipment and does the billing and collections. They contract out the EMS and ambulance operations through a competitive procedure every three years.

The current contractor is Metro Ambulance, Inc. of Marietta, Georgia. Metro offers both EMS and nonemergency ambulance service. The EMSA service area covers about 190 square miles and contains some 385,000 residents. Last year Metro responded to some 16,000 calls and transported 13,000 patients. They employ about 35 EMT-1s and 20 paramedics, pairing one of each for service calls. EMSA and Metro also utilize computer-based system status planning programs.

During the 1982-83 fiscal year the EMSA budget was just under $2 million, with 84 percent of revenues coming from user fees. The remainder was subsidized by the city. They project that all of the $2.1 million budget for 1983-84 can be financed from fees.

\textsuperscript{12}The material for Tulsa is based on interviews with Stephen Williamson, Executive Director of the Emergency Medical Services Authority.
Reprise. These short descriptions illustrate the similarities and differences among the EMS programs. All provide EMS; the public providers also usually fight fires, and the public utility style of providers usually sell scheduled ambulance services. All provide Advanced Life Support (ALS) as well as Basic Life Support; the public providers generally employ twice as many EMTs as paramedics, and the utility types of programs tend to send a paramedic on each response. Some of the public providers charge for services, at least for transport when they provide it; the utility types of providers usually charge both for transport and for the medical services they provide.

As the public programs generally are provided in conjunction with firefighting or other public service activities, information concerning their costs is difficult to extract and interpret. Information on the costs to the public authority of the utility type of program, however, is often available. In particular, Alan Jameson, who along with Jack Stout has designed and implemented those programs, has published some statistics describing the Fort Wayne, Kansas City, and Tulsa operations. These are reproduced in Table 5.1.

<table>
<thead>
<tr>
<th>Item</th>
<th>Tulsa, Oklahoma</th>
<th>Kansas City, Missouri</th>
<th>Fort Wayne, Indiana</th>
</tr>
</thead>
<tbody>
<tr>
<td>System cost (million $/year)</td>
<td>2.1</td>
<td>4.2</td>
<td>1.8</td>
</tr>
<tr>
<td>Patients transported (1000/yr)</td>
<td>12.9</td>
<td>22.0</td>
<td>12.0</td>
</tr>
<tr>
<td>Unit-hours per week</td>
<td>790</td>
<td>1600</td>
<td>770</td>
</tr>
<tr>
<td>Cost per unit-hour ($)</td>
<td>52</td>
<td>50</td>
<td>45</td>
</tr>
<tr>
<td>Patient transports per unit-hour</td>
<td>0.31</td>
<td>0.26</td>
<td>0.30</td>
</tr>
</tbody>
</table>

The system costs reported in this table include "the total cost of both emergency and nonemergency ambulance service, including labor, profits, cost of regulation, equipment replacement, maintenance, cost of dispatching, data processing, billings and collections,"\(^{13}\) and perhaps other items. The table relates the availability of units, expressed in unit-hours, to the cost and the utilization of those units. The figures are surprisingly consistent across cities. Services organized in this manner apparently can put units on the street for a cost of about $50 per unit hour. And, given the patterns of demand they face, the available units typically treat and transport a patient every three to four hours.\(^{14}\) This information, while hardly sufficient to demonstrate the effectiveness, efficiency, or even the need for these programs certainly provides a benchmark that other organizations can use in evaluating their costs and services.

**The Cost-Effectiveness of EMS Programs**

How well EMS programs operate, how effectively they use monies to treat and transport patients, and how efficient one form of organization is relative to another are questions that have not been answered. Indeed, they are seldom addressed. Some descriptions and evaluations have been documented, however; several are summarized below.

Much of the uncertainty surrounding the effectiveness and worth of local EMS concerns the use and misuse of paramedics. Acton (1973) provided early estimates of the cost per life saved by physician-attended mobile coronary care (MCCU) units and by ambulances attended by nonphysician personnel trained to administer antiarrhythmic drugs. He put the full (direct and indirect) costs of the MCCU program at about

\(^{13}\)Jameson, 1983d, p. 48.

\(^{14}\)Not all EMS actions, of course, involve the patient being transported to a hospital or other medical facility. Data from Los Angeles County for January 1980 (discussed on pages 113-119) indicate that only about 77 percent of the runs terminated with the patient in a medical facility. (Three percent had died before help arrived; 2 percent were arrested; and the remainder were treated and/or referred and released.) Serious medical problems requiring transport, however, are the raison d’être of EMS, and they are the runs that involve the most costs and, potentially at least, generate the most revenue.
$700 per additional life saved (in 1970 dollars). More recent evidence from King County, Washington, to be discussed below, indicates that paramedics, at least as employed there, are worth more than their differential cost. Further evidence from the King County and other programs, however, indicates that today's paramedics are usually employed in an inefficient and wasteful manner.

King County phased paramedic service into a region that was already receiving rescue and emergency medical service from EMTs of the local fire departments. Before and after comparisons were made by researchers associated with the King County Department of Public Health and the University of Washington. They found, first and foremost, that the addition of paramedics into this EMS program appeared to be effective in reducing deaths, especially from cardiac arrest.

The King County researchers quantified both the effectiveness and the costs of the local program and compared the two. Combining information on total program cost with their data on lives saved after cardiac-arrest, the researchers estimated the program had an overall benefit/cost ratio of 1.13 and estimated the cost per life saved to be about $42,000.15 However, although the benefit/cost ratio for the paramedics was greater than unity, it was not obvious that the paramedic-oriented program instituted in King County was the most efficient use of the taxpayer's money. Response time was found to be more important than advanced treatment methods per se. Rigorous study of the program there found that "if reduction in mortality is to be maximized, cardiac arrest patients must have CPR initiated within four minutes and definitive care provided within ten minutes." The researchers concluded that better training of EMTs and the public in CPR seemed at least as promising as expansion of the higher-unit paramedic services.16

The general efficiency findings of the King County program have been verified in Seattle (Mayer, 1979) and in a paramedic program in New Westminster, British Columbia (Vertesi, 1978). Although there is general agreement that paramedics and EMS in general are important contributors to the improvement of public health, many questions remain as to the most cost-efficient arrangements for providing EMS.

16Eisenberg, Bergner, and Hallstrom, 1979a, abstract and p. 38.
CHARGING FOR EMS

Tax revenues and user charges are the two general financing methods for EMS and other health services. Most programs were originally tax supported, but over the past few years more and more providers have become interested in user charges that assess some or all of the costs of EMS directly against the patients.

User charges for EMS, and for medical care in general, usually are associated directly with the availability of insurance. Insurance provides third-party payment, both through the federal government (Medicare and Medicaid) and through private insurance companies. Local jurisdictions are most willing to impose charges for services that are insurance reimbursable, and most jurisdictions report a much higher collection rate on such charges.

Although patients may offset user charges with insurance, conceptually insurance is closely allied with tax support because both provide third-party payment. The differences between them involve the method of collecting the revenue and the voluntary nature of private insurance. Taxes to support both federal medical assistance programs and local EMS programs are usually assessed on some measure of ability to pay. Private insurers must charge according to risk.

Table 5.2 shows the fee structures for the sample of EMS programs. Los Angeles County (and a great many other jurisdictions which provide EMS via public employees) has no user fees, financing the program totally with tax revenues. Saint Paul charges for EMS, but only when the case is severe enough to involve transportation to the hospital. The charge is currently $171 for BLS services and $204 for ALS services. The charge is included in the eventual hospital billing to the patient. Saint Paul feels this is an effective means of presentation as the collection rate is about 80 percent.

Burlington's fees consist mainly of flat rates for several types of transport, medical attention, drugs, and supplies are included.

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17 If paramedics arrive in an ALS-equipped ambulance but provide only basic services, the charge remains $171.
<table>
<thead>
<tr>
<th>Jurisdiction</th>
<th>Percent of Budget from Local Taxes</th>
<th>Fees for Service</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Saint Paul, Minnesota</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Emergency service</td>
<td>3(^a)</td>
<td>$204</td>
<td>$171</td>
</tr>
<tr>
<td>Burlington, Iowa</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Local service</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Residents</td>
<td></td>
<td>$125</td>
<td></td>
</tr>
<tr>
<td>Nonresidents</td>
<td></td>
<td>175</td>
<td></td>
</tr>
<tr>
<td>Neonatal transfer</td>
<td></td>
<td>225</td>
<td></td>
</tr>
<tr>
<td>Transfer to distant points</td>
<td></td>
<td>300</td>
<td></td>
</tr>
<tr>
<td>Fort Wayne/Allen County, Indiana</td>
<td>25(^d)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ambulance service</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scheduled transfer</td>
<td></td>
<td>75</td>
<td>(f)</td>
</tr>
<tr>
<td>Nonscheduled transfer</td>
<td></td>
<td>87</td>
<td>(f)</td>
</tr>
<tr>
<td>Emergency service</td>
<td></td>
<td>250</td>
<td>120</td>
</tr>
<tr>
<td>Kansas City, Missouri</td>
<td>20(^d)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emergency response</td>
<td></td>
<td>250</td>
<td>(g)</td>
</tr>
<tr>
<td>Nonemergency response</td>
<td></td>
<td>120</td>
<td>(g)</td>
</tr>
<tr>
<td>Tulsa, Oklahoma</td>
<td>15(^d)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emergency response</td>
<td></td>
<td>299</td>
<td>(i)</td>
</tr>
<tr>
<td>Nonemergency response</td>
<td></td>
<td>110</td>
<td>(i)</td>
</tr>
</tbody>
</table>

SOURCE: Telephone interviews with program officials.

\(^a\)Percent of Fire Department budget.

\(^b\)Charges assessed only if patient is transported.

\(^c\)Percent of ambulance division budget.

\(^d\)Percent of EMS budget.

\(^e\)Offers "Life Care" ambulance service to elderly at $48/year.

\(^f\)Also charge $2.50 per loaded mile for transport plus cost of all supplies.

\(^g\)Also charge $3.25 per loaded mile for transport plus cost of all procedures and drugs.

\(^h\)Offers "Golden Care" EMS and ambulance service to elderly for $50/year.

\(^i\)Also charge $3.00 per loaded mile for transport plus cost of all procedures and drugs.
Fort Wayne and Allen County fees are set by the Board of Directors of the Three Rivers Ambulance Authority. Fees here consist of a fixed component based on the type of service provided plus variable components based (1) on a mileage rate of $2.50 per loaded mile and (2) on the cost of all supplies consumed. The statutes affecting the Authority stipulate that these fees be charged to all users, regardless of their level of physical disability or their ability to pay. The Authority reports an informal policy of not pressing indigents for payment. Slightly less than 70 percent of all billings are collected.

The Fort Wayne/Allen County EMS Authority also offers reduced price subscription ambulance service to the elderly. This "Life Care" service is priced at $48 a year. All required services are then provided and the Authority receives whatever third-party payments are available. Any remaining costs are written off.

In Kansas City MAST uses a standard itemized billing system, similar to hospital billing, with fees divided into three components to cover specific types of costs. The basic charge for a nonemergency response is currently $120 plus $3.25 per mile. For an emergency it is $250 plus $3.25 per mile. Some illustrative material and procedure fees are: $28 for the intravenous infusion of medication (IV plus drugs) and $13 for oxygen.

Kansas City states that although it has no formal policy for easing the payment load for those who may find it difficult to pay, an informal policy allows those who request relief to pay over time with no interest. For all others, if payment is not received within 90 days the bills are referred to a collection bureau.

The Tulsa fee schedule includes charges for basic service, mileage, and supplies. All necessary procedures are covered by the basic service charge. Examples of charges for supplies include $47 for cardiac monitoring and $15 for oxygen.

Tulsa is quite proud of its billing system; all users receive an itemized bill within one week of treatment. The bill is payable within 45 days and incurs a finance charge if not paid within 60. If no payment or arrangements for payment have been made within 90 days, the payment is referred to a collection agency. They find they are collecting 65 to 70 percent of their billings.
Tulsa offers a "Golden Care" plan for the elderly and totally disabled. This plan is similar to the Life Care service offered in Fort Wayne and to the new plan recently instituted in Kansas City: A person pays a $50 per year subscription fee to EMSA and then signs over their insurance rights to the Authority; EMSA then covers all expenses incurred for EMS or transport and collects whatever it can from Medicare or the patient's private insurance company.

To summarize, the literature review and survey of local jurisdictions have found that there are several quite different philosophies on charging for EMS. Many jurisdictions, including Los Angeles County, do not charge users but depend on general tax support. These providers stress the social benefits of medical service, the insurance features of tax finance, and the appropriateness of the more affluent residents providing for those who are less well off.

Other public jurisdictions acting as providers of EMS levy some charges, at least for transporting patients to the hospital. Fees provide a considerable amount of financing for some jurisdictions, but substantial assistance, usually from general tax revenues, is still required. These providers stress the appropriateness of the users, when financially able, paying for the services they receive; they cite the overuse that typically occurs when services are provided free of charge; and they note that many users have insurance covering medical transport and perhaps other EMS charges.

The programs organized under the public utility model usually have a stated objective of approximate financial independence. These programs charge for EMS as well as transport. Like many privately provided programs, they are equipped to offer scheduled transportation services as well as EMS. Most of the utility types of programs offer some form of reduced-price service to the elderly.

Jurisdictions with utility types of programs stress the private benefits of EMS but agree that the community should cover at least some of the costs of services for the less affluent and for some disadvantaged groups, usually by subsidizing those who do not pay their EMS bills.
THE USERS OF EMS

Jurisdictions considering user fees encounter several major questions or problem areas: (1) determining what services to charge for and deciding on the level of the various charges; and (2) estimating the revenue the charges will bring in (including the analysis of demand elasticity) and calculating revenues sacrificed when charges are waived or otherwise not paid. This section examines the characteristics of EMS users to demonstrate the calculation of revenues.18

EMS affects disadvantaged individuals in two ways: They use it, and in some places they pay for it. Issues of direct concern to the Department of Health and Human Services concern both the benefits that EMS conveys to the disadvantaged and the magnitude of the costs that may be assessed against them. Local jurisdictions are typically interested in both of those questions and on the effects that exempting the disadvantaged from EMS charges would have on local revenues and on community health.

The literature review uncovered several studies that discuss the types of people who typically used EMS and paramedic services. These are summarized below. Then data from the L.A. County Fire Department permit determination of the characteristics of the patients treated in 1980.19

Mayer (1979) analyzed data for 1976 from the Seattle Fire Department's emergency medical encounter forms. He hypothesized and found to be true that several factors would influence the number of calls from a census tract, including the daytime and the nighttime population of the tract and the types of activities—industrial, recreational, transit, etc.—that occurred within it. He also found that in the richer sections of the city a higher percentage of the calls

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18A third major area of concern includes estimating the political response to the charges (including the response of taxpayer and activist or advocate groups). This topic is beyond the scope of the study.

19L.A. County does not assess user fees of any type for EMS and has no plans for doing so in the immediate future. They do, however, have one of the best run and best documented systems in the country and have graciously volunteered their computerized EMS data for this pilot analysis with the hope that the methods and the findings will be helpful to other jurisdictions.
were serious and involved unsuccessful attempts at resuscitations. Mayer took this to indicate that the affluent citizens used EMS more as a last resort, whereas the other groups were more likely to call EMS in less serious cases, perhaps in lieu of consulting a physician.

Williams and Shavlik (1979) matched data from the 1977 records of a private paramedic service in San Bernardino, California, with income data from the 1970 decennial census and the 1975 special census. Concentrating on paramedic runs, defined as "one in which EKG monitoring, IV insertion, injections, bio-medical communication, defibrillation, or provision of an esophageal airway is required," they found that race and income were related to the demand for EMS, and that more men than women and more old people than young used the service. The median family income within a census tract was apparently the variable most strongly correlated with the tract's population-adjusted use of EMS.

Together these studies seem to indicate that poorer families and older people use a disproportionate share of EMS services. Neither study tried to assess the effects of user fees.

THE EFFECTS OF IMPOSING EMS CHARGES IN L.A. COUNTY

Los Angeles County, with over 7 million residents, is the most populous county in the nation and is second only to New York City in terms of all local jurisdictions. However, as already mentioned, the county does not provide all local services to all of its residents. In particular, the County Fire Department serves only about 2 million of the local residents—those located in the unincorporated areas of the county and within some 44 cities served by the department. It does not service the City of Los Angeles (nearly 3 million residents) nor other cities with their own fire departments. The county is highly heterogeneous, composed of desert, mountains, wetlands, farms, and coastal areas.

Table 5.3 shows the runs per thousand population for several cities and counties whose EMS we have contacted. Although its scale of operation is quite large, the L.A. County Fire Department has fewer runs per thousand than any of the other jurisdictions. In part this may be because some of these jurisdictions (in particular, Burlington, Fort
Table 5.3
EMS RUNS FOR SELECTED JURISDICTIONS
VARIOUS YEARS

<table>
<thead>
<tr>
<th>City</th>
<th>Total Runs</th>
<th>Population</th>
<th>Runs/1,000</th>
<th>Year of Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Burbank, Ca.</td>
<td>3,800</td>
<td>87,500</td>
<td>43</td>
<td>1982</td>
</tr>
<tr>
<td>Burlington, Iowa</td>
<td>1,400</td>
<td>33,000</td>
<td>42</td>
<td>1982</td>
</tr>
<tr>
<td>Saint Paul, Minn.</td>
<td>14,000</td>
<td>265,000</td>
<td>53</td>
<td>1983</td>
</tr>
<tr>
<td>Fort Wayne/Allen County</td>
<td>15,500</td>
<td>300,000</td>
<td>52</td>
<td>1982</td>
</tr>
<tr>
<td>Tulsa, Okla.</td>
<td>16,000</td>
<td>385,000</td>
<td>42</td>
<td>1982</td>
</tr>
<tr>
<td>Seattle, Wash.</td>
<td>20,000</td>
<td>487,000</td>
<td>41</td>
<td>76/75</td>
</tr>
<tr>
<td>Kansas City, Missouri</td>
<td>30,000</td>
<td>450,000</td>
<td>67</td>
<td>1983</td>
</tr>
<tr>
<td>Los Angeles County, Ca.</td>
<td>80,000</td>
<td>2,220,000</td>
<td>36</td>
<td>1980</td>
</tr>
</tbody>
</table>

Wayne/Allen County, and Tulsa) offer scheduled ambulance service as well as EMS and may be including those runs in their figures.

The L.A. County Fire Department provided us with computer-coded information on all of its EMS runs for 1980. Available information included: date and time of the call and response, including day of the week; responding units; reporting and jurisdictional stations; number of patients; type of incident (paramedic rescue, nonparamedic rescue, or false alarm); action (rescue or investigation); and census tract. Slightly more than 80,000 runs were documented.

For the first month of 1980, the fire department also coded data on: alarm source (telephone, alarm box, etc.); age and sex of the patient; type and cause of the incident; treatment performed; disposition of the patient; and manhours worked by all responding units. These records covered some 6,800 runs.

The EMS data were aggregated by census tract and then merged with information from the 1980 Census of Housing and Population. The census data provided information on the demographic features of the tracts, including: number of residents, families, and households (given separately for the urban and the rural portion of each tract); the size and type of each household and the sources of income it received; the income and poverty status, age, sex, race, nationality, origin, birthplace, and education of each person; and the occupation and weeks
employed of each worker. It also contains housing data covering the type, location, and features of each occupied unit, and counts of the units available but not occupied.

Analysis of this merged data quickly revealed that no single variable explained the complex pattern of rescue calls attended by the Fire Department. Simple correlations, shown in Table 5.4, of the number of runs to a census tract with the size of the tract, the median income of the residents of the tract, and the race and nationality make-up of the residents revealed that population size was the most significant variable in determining the number of runs, with the other variables trailing far behind.

The Hypothesis

The objective was to identify the types of households that used large amounts of EMS and to quantify the percentage of total users who might qualify, in one way or another, for exemption from user fees, should the county ever assess such fees. To know that one-eighth of the population is poor does not mean that charges based on full cost with exemption of the poor will generate seven-eighths of EMS costs. The poor might be disproportionate users. If they happened to make up 80 percent of EMS users, then charges based on full cost assessed only on

<table>
<thead>
<tr>
<th>Item</th>
<th>Number of Runs</th>
<th>Total Persons</th>
<th>Median Income</th>
<th>Percent White</th>
<th>Percent Black</th>
<th>Percent Spanish</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of runs</td>
<td>1.00</td>
<td>0.54</td>
<td>-0.07</td>
<td>0.05</td>
<td>-0.08</td>
<td>0.10</td>
</tr>
<tr>
<td>Total population</td>
<td>0.54</td>
<td>1.00</td>
<td>0.13</td>
<td>0.06</td>
<td>-0.09</td>
<td>-0.04</td>
</tr>
<tr>
<td>Median income</td>
<td>-0.07</td>
<td>0.13</td>
<td>1.00</td>
<td>0.42</td>
<td>-0.26</td>
<td>-0.43</td>
</tr>
<tr>
<td>Percent white</td>
<td>0.05</td>
<td>0.06</td>
<td>0.42</td>
<td>1.00</td>
<td>-0.86</td>
<td>-0.37</td>
</tr>
<tr>
<td>Percent black</td>
<td>-0.08</td>
<td>-0.09</td>
<td>-0.26</td>
<td>-0.86</td>
<td>1.00</td>
<td>-0.09</td>
</tr>
<tr>
<td>Percent Spanish</td>
<td>0.10</td>
<td>-0.04</td>
<td>-0.43</td>
<td>-0.37</td>
<td>-0.09</td>
<td>1.00</td>
</tr>
</tbody>
</table>

SOURCE: Analysis of EMS data for 1980 supplied by L.A. County Fire Department.
those with the ability to pay would actually recover less than 20 percent of total costs.

The literature and preliminary observation of the merged data revealed that EMS runs responded to several types of events. There are five distinct classes, each with different implications for EMS use and its revenue potential.

Runs deal with (1) automobile and other traffic accidents, (2) work-related accidents, (3) other accidents, (4) myocardial infarctions, and (4) other medical causes. Table 5.5 shows the distribution of EMS calls for January 1980 among these five classes. Noncardiac medical is the major contributor to EMS runs, accounting for 45 percent of the total. Traffic-related and other accidents also contribute significantly, accounting for 19 and 16 percent, respectively. The cardiac cases represent only 10 percent of total calls. And work-related accidents account for just over 1.5 percent.

Each class of EMS runs was separately analyzed to identify consistent patterns of users. The number of traffic accident calls should depend on the amount of traffic, the types of roads, and the condition of those roads within each census tract. Work-related accidents should depend on the types and number of jobs in the tracts and on the age and condition of the equipment employed there. Neither should be related to the income, age, or race of the residents of the tracts. Other accidents, defined as those occurring in the home or at places other than work, and the medical classes should depend more on the characteristics of the inhabitants.

The Findings

First Census tracts were arranged by median household income and then the tracts were divided into population quintiles (each group containing one-fifth of the total population served by the county). The lowest quintile thus spanned the poorest of the county's Census tracts, the second quintile the next poorest, etc. The distribution of EMS runs in January 1980, by type, was computed for each quintile. The results

\footnote{With the exception of class (2) this corresponds to the breakdown used by Aldrich, Hisserich, and Lave (1973).}
Table 5.5
DISTRIBUTION OF L.A. COUNTY EMS RUNS
BY TYPE OF INCIDENT, JANUARY 1980

<table>
<thead>
<tr>
<th>Item</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accidents</td>
<td></td>
</tr>
<tr>
<td>Traffic-related</td>
<td>19</td>
</tr>
<tr>
<td>Work-related</td>
<td>2</td>
</tr>
<tr>
<td>Other</td>
<td>16</td>
</tr>
<tr>
<td><strong>Total accidents</strong></td>
<td><strong>36</strong></td>
</tr>
<tr>
<td>Medical</td>
<td></td>
</tr>
<tr>
<td>Cardiac</td>
<td>10</td>
</tr>
<tr>
<td>Other</td>
<td>45</td>
</tr>
<tr>
<td><strong>Total medical</strong></td>
<td><strong>55</strong></td>
</tr>
<tr>
<td>Miscellaneous/unknown</td>
<td>9</td>
</tr>
<tr>
<td><strong>Total calls</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

SOURCE: Analysis of EMS data from L.A. County Fire Department.
NOTE: Detail may not sum to total because of rounding.

are shown in Table 5.6, which suggests strongly that there are important variations in the way different groups use the county EMS. Runs attending to traffic accidents and cardiac events are distributed nearly equally among the income classes, but runs relating to other accidents and other medical emergencies appear strongly related to income.\footnote{The value of the $\chi^2$ statistics for the entries in table 5.5 is 75.4, indicating strong rejection of the null hypothesis of no significant influence of income on EMS demand.}

The distribution of runs for work-related accidents is clearly caused by low income levels in areas where there are many jobs. That is, high income neighborhoods have fewer employment sites than low income neighborhoods.
Table 5.6
PERCENT OF EMS RUNS BY TYPE AND INCOME CLASS
LOS ANGELES COUNTY, JANUARY 1980

<table>
<thead>
<tr>
<th>Income Quintile</th>
<th>Accidents</th>
<th></th>
<th>Medical</th>
<th></th>
<th></th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Traffic</td>
<td>Work</td>
<td>Other</td>
<td>Cardiac</td>
<td>Other</td>
<td></td>
</tr>
<tr>
<td>Highest 4</td>
<td>20</td>
<td>14</td>
<td>18</td>
<td>18</td>
<td>13</td>
<td>16</td>
</tr>
<tr>
<td>3</td>
<td>18</td>
<td>10</td>
<td>16</td>
<td>21</td>
<td>16</td>
<td>17</td>
</tr>
<tr>
<td>2</td>
<td>19</td>
<td>18</td>
<td>18</td>
<td>22</td>
<td>19</td>
<td>19</td>
</tr>
<tr>
<td>Lowest</td>
<td>22</td>
<td>28</td>
<td>26</td>
<td>20</td>
<td>30</td>
<td>27</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

| No. of Runs     | 1,126 | 97     | 940    | 581     | 2,706   | 5,450  |
| Percent         | 21    | 2      | 17     | 11      | 50      | 100    |

SOURCE: Analysis of EMS data supplied by L.A. County Fire Department.
NOTE: Detail may not run to total because of rounding.

Further analysis of the EMS data indicates that when several of possible causal factors are considered simultaneously, the effect of income on cardiac-related EMS runs is probably positive. (See Table 5.7.) That is, in response to heart attacks more runs go to higher than to lower income areas, after netting out the effects of the isolation of the neighborhood (the urban and agricultural variables are significant) and the effect of age (included in the SSI variable). This has important implications for EMS finance and subsidies.

For noncardiac illness, employment in agricultural and manufacturing seems associated with high levels of calls and dependence on wage income leads to fewer calls. This latter is probably a disguised age effect. For all calls combined, including those for accidents that largely depend on the nonresidential attributes of tracts, employment in agriculture, construction, and manufacturing has positive effects on EMS demand; and income, urban location, and dependence on wages have negative effects.
Table 5.7
SIGNIFICANCE OF REGRESSION COEFFICIENTS IN ALTERNATIVE EQUATIONS:
EMS RUNS AND TRACT CHARACTERISTICS
("t" Value, by independent variable)

<table>
<thead>
<tr>
<th>Coefficient</th>
<th>Medical Runs</th>
<th></th>
<th>Total, Including</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Cardiac</td>
<td>Other</td>
</tr>
<tr>
<td>Demographics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Income</td>
<td>1.6</td>
<td>-1.0</td>
<td></td>
</tr>
<tr>
<td>Urban</td>
<td>-3.0</td>
<td>-0.1</td>
<td></td>
</tr>
<tr>
<td>Non-Spanish</td>
<td>2.6</td>
<td>0.7</td>
<td></td>
</tr>
<tr>
<td>Foreign born</td>
<td>0.9</td>
<td>-0.6</td>
<td></td>
</tr>
<tr>
<td>Grade school</td>
<td>0.4</td>
<td>0.7</td>
<td></td>
</tr>
<tr>
<td>Sources of Income</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wages or salaries</td>
<td>2.8</td>
<td>-3.1</td>
<td></td>
</tr>
<tr>
<td>Self employment</td>
<td>-1.7</td>
<td>-0.4</td>
<td></td>
</tr>
<tr>
<td>Interest</td>
<td>0.2</td>
<td>-1.3</td>
<td></td>
</tr>
<tr>
<td>SSI</td>
<td>2.5</td>
<td>0.9</td>
<td></td>
</tr>
<tr>
<td>Employment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agriculture</td>
<td>4.8</td>
<td>2.5</td>
<td></td>
</tr>
<tr>
<td>Self employment</td>
<td>2.0</td>
<td>0.2</td>
<td></td>
</tr>
<tr>
<td>Construction</td>
<td>2.2</td>
<td>0.3</td>
<td></td>
</tr>
<tr>
<td>Manufacturing</td>
<td>0.9</td>
<td>2.9</td>
<td></td>
</tr>
<tr>
<td>Government</td>
<td>-1.7</td>
<td>-1.0</td>
<td></td>
</tr>
<tr>
<td>Equation Statistics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F value</td>
<td>8.8</td>
<td>8.5</td>
<td></td>
</tr>
<tr>
<td>Adjusted R²</td>
<td>0.17</td>
<td>0.16</td>
<td></td>
</tr>
</tbody>
</table>

SOURCE: Analysis of EMS data for January 1980
supplied by L.A. County Fire Department.
NOTES: Independent variables represent runs per thousand of census-tract population for types of runs indicated.

- Income: Median income for the census tract;
- Urban: Percent of tract population living in urban areas;
- Non-Spanish: Percent of tract population not of Spanish origin;
- Foreign born: Percent of tract population foreign born;
- Grade school: Percent of tract population with no more than grade school education;
- Wages or salaries: Percent with some income from wages or salaries;
- Self-employment: Percent with some income from self-employment;
- Interest: Percent with some income from interest, dividends, or rent;
- SSI: Percent with some income from social security;
- Agriculture: Percent of tract population employed in agriculture;
- Self-employment: Percent of tract population self-employed;
- Construction: Percent of tract population employed in construction;
- Manufacturing: Percent of tract population employed in manufacturing;
- Government: Percent of tract population employed in government.
Quantitative evidence relating alternative cost-sharing plans to the use of general medical services is becoming available and can be used as a rough indicator of the EMS-users' response. Initial evidence from the Rand Health Insurance Study, a large-scale controlled trial in health care financing conducted between 1973 and 1982, indicates that the percentage of individuals seeking health care falls as the amount they must directly pay for that care rises. In general, participation is about 50 percent greater in a plan with no cost sharing than in a plan with 95 percent coinsurance (up to a limit of $1000 in any one year).22

Some examples will illustrate the usefulness of this information. If a local jurisdiction that does not now charge for EMS should institute what it thought were fees based on full cost, it might expect the number of EMS calls it receives to drop substantially, probably by about one-third ((1.5-1)/1.5). This would substantially reduce the revenue available from the fees and raise the average unit cost of providing the EMS, as many of the costs incurred by the county are fairly unresponsive to the number of calls. In the long run the drop of 33 percent in runs demanded could reduce the need for EMS personnel and equipment. Whether such a falloff in demand would reduce costs equivalently depends on the extent to which EMS or firefighting exerts the peak demand on the department.

To illustrate the calculations involved in estimating net revenue from the imposition of fees, assume that L.A. County would adopt a fee structure somewhat similar to that used in the Fort Wayne/Allen County program but with a simple ALS charge of $250 per run and a simple BLS charge of $120 per run; assume that only the cardiac runs require ALS; assume that calls drop by one-third after charges are introduced; and assume collection of 70 percent of charges billed. All of the above

---

22Newhouse et al., p. v.
would mean that the county would collect about $4 million per year.\textsuperscript{23}

If charges for mileage and supplies were also assessed, the revenue would increase. Costs of collection would be incurred in any case, reducing the usable revenues.

Returning to the example, if a neighborhood rebate system were installed such that no fees were collected in the lowest quintile of census tracts,\textsuperscript{24} the revenue collected would drop by about $1 million and the number of runs would increase by about 12 percent over the level for charges but no rebates.\textsuperscript{25} Thus, this simple neighborhood rebate system, which would be easy to administer, although cruder than equity protection based on individually determined discounts, results in a loss of about 25 percent in charge revenues. If additional groups were to be exempted the loss of revenue would be greater.

In some jurisdictions revenue shortfalls due to equity protections could be reduced by increasing the size of the fees. This possibility is constrained in California, where state law precludes counties and fire protection districts from imposing charges in excess of actual costs. If the definition of costs is limited to those incurred specifically for the service provided to an individual, systems incorporating exemptions, or even those with defaulters, could never be fully self-supporting.

\textsuperscript{23} Using data from Tables 5.2 and 5.5 along with the assumptions detailed in the text the calculation is: $0.7 \cdot (1.0 - 0.33) \cdot \{(\$250 \cdot 581) + [\$120 \cdot (5450 - 581)]\} = \$340,447 per month, or about $4 million per year if January is a typical month. This is about 3 percent of the Fire Department's budget for fiscal 1980.

\textsuperscript{24} Median household income for tracts in the lowest quintile was only $10,800 in 1979, or about 55 percent of the median for the all of the tracts served by the county.

\textsuperscript{25} The calculation now becomes: $0.7 \cdot (1.0 - 0.33) \cdot \{(\$250 \cdot 466) + [\$120 \cdot (3995 - 466)]\} = \$251,991 per month, or just over $3 million per year.
INTERPRETATION

The literature review and telephone survey provide information on various EMS programs, which are provided in many ways under several organizational schemes. Currently there is no evidence to conclude whether public, private, or utility-model production is superior, or to identify the most efficient production mix of EMS, ambulance, fire prevention, and fire suppression services. These are empirical questions, however, and properly designed data collection and analyses efforts should be able to provide definitive answers.

EMS programs are financed in many ways: by taxes (local, state, and federal), by user fees, and indirectly by insurance. Unlike questions dealing with efficiency, questions dealing with financing and equity can seldom be answered conclusively no matter how much information and methodology there is. It is possible to investigate the types of people who use EMS and then to estimate the effect of exempting certain groups from user fees.

Analysis of EMS data supplied by the L.A. County Fire Department and merged with socio-demographic indicators from the 1980 Census of Population and Housing confirms the previously reported inverse relationship between income and EMS demand. Low-income and otherwise needy households can, of course, be exempted from EMS charges, but this will lower the revenue a jurisdiction can expect to receive from such charges.

The jurisdictions that charge users directly for EMS reported they found it easier to bill all patients, rather than attempting to identify, at the time of treatment, those who cannot or should not be asked to pay. If individuals later reveal valid reasons for being exempted the jurisdictions do not press for payment. As a simple alternative, the jurisdiction could be divided into two areas, a low-income area where fees are routinely waived and the higher income area where they are always assessed. Waivers for low income individuals living in the high income area could be made later case by case.

Further investigation of the L.A. County EMS data reveals considerable differences in the relationships among different types of EMS calls and classes of users. In particular, more of the runs
requiring unique paramedic skills and equipment (those for cardiac cases) are associated with higher income neighborhoods (see Table 5.7). Paramedic salaries, training, and equipment represent a major portion of the EMS budget, and their skills are geared toward the treatment of cardiac events (which represent at most some 10 to 15 percent of all calls). Therefore, when user fees are charged, differentiating individual fees on the basis of the procedures actually performed and on the required training of the provider would both improve the horizontal equity of the system and alleviate some of the burden that more uniform fees would place on low income users.


Brown, Stephen, Director of the Fort Wayne, Indiana EMS program, telephone interview on April 7, 1983 and notes dated February 24, 1984.


Parris, Douglas, Chief of the Burbank, California, Fire Department, telephone interview on April 5, 1983.

Poole, R. W., Jr., "Paramedics for Profit," Fiscal Watchdog (monthly bulletin of the Local Government Center, 1018 Garden Street, Santa Barbara, Ca.), No. 74, December 1982.


Proposed 1983 Budgets: General Fund and Debt Service Funds, City of Saint Paul, n.d.


Schulte, Linda, secretary to the Chief of the Burlington, Iowa, Fire Department, telephone interview on April 5, 1983 and notes dated February 28, 1984.

Stober, Robert, Assistant Fire Chief for Saint Paul, Minnesota, telephone interview on February 24, 1983.


Williamson, Stephen, Executive Director of the Emergency Medical Services Authority in Tulsa, Oklahoma, telephone interviews on April 11, 1983 and February 27, 1984.

Wozmak, Mark S., Executive Director of the Kansas City, Missouri, EMS program, telephone interview on April 14, 1983 and letter dated March 1, 1984.
VI. A PILOT REVENUE CENTER
FOR TRAFFIC AND LIGHTING FUNCTIONS

by
Kevin Neels

This section outlines the design of a new management concept called the Revenue Center for the operation of the Division of Traffic and Lighting in the Saint Paul, Minnesota, city government. Revenue Centers are organizations set up to provide public goods services to the populace on contract to the central administration of the municipality, while offering private and merit goods services on the basis of fees and charges. A device to relieve charge inequities--deferred special assessments--is also explored.

Revenue Centers engage in various revenue raising activities in their dealings with citizens, private organizations, and other jurisdictions. They operate with an entrepreneurial "bottom line" orientation and use earned surpluses to explore new ventures, invest in new lines of endeavor, and reward meritorious service.

The Traffic and Lighting Revenue Center exemplifies many of the reforms stimulated by the institution of beneficiary charges. It will draw its funding from a mixture of own source and general revenue. Its own source revenues will include earmarked funds, user charges, enterprise income, and special assessments.

SERVICE RESPONSIBILITIES

The boundaries of the pilot Revenue Center will be coincident with the present boundaries of the Division of Traffic and Lighting. The Revenue Center will assume the service responsibilities now carried out by the division, and all of the people who now work for the division will become Revenue Center employees.

2The Revenue Center concept has some affinity with the public utility model discussed in Sec. V. However, revenue centers differ in providing both public good and private good services and in concentrating on self-production rather than contracting out.
As its name implies, Saint Paul's Division of Traffic and Lighting is responsible for assuring the smooth and efficient flow of vehicular traffic through the city and the provision of lighting along city streets and in public places. Organizationally, the division is broken down into four principal subunits. *Lighting Operations and Maintenance* is responsible for the operation and maintenance of the city's 18,000 street lights. *Signal Operations and Maintenance* takes care of the city's system of traffic signals. *Traffic Operations and Maintenance* is responsible for the other components of the traffic control system, including signs, striping, and parking meters. *Traffic Engineering* is responsible for traffic flow analysis and planning. The latter unit also houses the division's administrative functions. In addition, the *Traffic Operations and Maintenance Bureau* provides support services for the division's other activities. All of these functions would be turned over to the pilot Revenue Center.

**OPERATING EXPENSES**

Revenue Center operating expenses begin with the division's 1984 budget, expanded to reflect the costs of providing some new services and taking on additional work. Finally, fringe benefits and central services costs that are associated with the division's operations but not now budgeted in its accounts are added. The result is an estimate of the full costs of operations of the proposed Revenue Center.

The costs the Revenue Center would incur are estimated with 1984 as a reference year. Subsequently, these figures will be inflated to reflect costs in 1985 and beyond.

The activities of the Division of Traffic and Lighting are shown along with their 1984 proposed budgets and staffing levels in Table 6.1. In total, the proposed budget calls for expenditures of $3.7 million and a workforce of 66.2 full time equivalent personnel (FTEs).

One of the purposes of Revenue Centers is to provide a way of turning productivity gains not merely into reduced workforce levels, but also into increased own-source revenue and reductions in general revenue requirements. Earning revenue from new sources will require additional
Table 6.1
1984 PROPOSED BUDGET FOR THE DIVISION OF TRAFFIC AND LIGHTING

<table>
<thead>
<tr>
<th>Activity</th>
<th>Description</th>
<th>Expenditures ($'000s)</th>
<th>FTEs</th>
</tr>
</thead>
<tbody>
<tr>
<td>02155</td>
<td>Traffic Engineering</td>
<td>297</td>
<td>8.8</td>
</tr>
<tr>
<td>02280</td>
<td>Traffic and Lighting Maintenance Bureau</td>
<td>132</td>
<td>2.9</td>
</tr>
<tr>
<td>02281</td>
<td>Traffic Operations and Maintenance</td>
<td>565</td>
<td>17.3</td>
</tr>
<tr>
<td>02282</td>
<td>Signal Operations and Maintenance</td>
<td>725</td>
<td>9.2</td>
</tr>
<tr>
<td>02283</td>
<td>Lighting Operations and Maintenance</td>
<td>1530</td>
<td>17.3</td>
</tr>
<tr>
<td>12005</td>
<td>Traffic Maintenance Projects</td>
<td>7</td>
<td>.3</td>
</tr>
<tr>
<td>12006</td>
<td>Signal Maintenance Projects</td>
<td>147</td>
<td>3.6</td>
</tr>
<tr>
<td>12007</td>
<td>Lighting Maintenance Projects</td>
<td>151</td>
<td>3.5</td>
</tr>
<tr>
<td>12155</td>
<td>Traffic and Lighting Engineering</td>
<td>147</td>
<td>3.3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>3701</strong></td>
<td><strong>66.2</strong></td>
</tr>
</tbody>
</table>

**SOURCE:** Proposed 1984 Budgets: General Fund and Debt Service Funds, City of Saint Paul, Minnesota.
FTEs = Full time equivalent employees.

divisional resources. The resulting expanded budget differs from the proposed budget by $416,000 and 7.8 FTEs.²

Neither the proposed budget nor the expanded departmental request budget accurately depicts the full costs of operation for the division. Some costs now appear in other parts of the city budget. The largest of these "misbudgeted" items is the cost of employee fringe benefits. For General Fund employees, these costs are combined and budgeted in the general government accounts, rather than the individual activities of the division. The other big item not reflected in the division's present budget is the cost of central support services. Once it starts to operate as a Revenue Center, Traffic and Lighting will have to start paying for many support and overhead services that it now receives for free. We estimate costs by examining the experience of other Special Fund activities that roughly represent the division's operations.

²The additional funds cover the salaries of two accounting clerks and one clerical supervisor.
The full costs of operation for the Division of Traffic and Lighting are shown in Table 6.2. Adding in fringe benefits and central service overhead costs for the general fund accounts increases the division's budget by another $649,000.

Table 6.2

<table>
<thead>
<tr>
<th>Activity</th>
<th>Wages and Salaries</th>
<th>Fringe Benefits</th>
<th>Central Service Overhead</th>
<th>Other Costs</th>
<th>Total Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>02155</td>
<td>295,584</td>
<td>83,868</td>
<td>6,358</td>
<td>43,710</td>
<td>429,489</td>
</tr>
<tr>
<td>02280</td>
<td>115,416</td>
<td>31,372</td>
<td>2,905</td>
<td>75,900</td>
<td>225,592</td>
</tr>
<tr>
<td>02281</td>
<td>495,341</td>
<td>127,640</td>
<td>11,521</td>
<td>149,195</td>
<td>783,697</td>
</tr>
<tr>
<td>02282</td>
<td>381,479</td>
<td>105,418</td>
<td>10,129</td>
<td>417,000</td>
<td>914,026</td>
</tr>
<tr>
<td>02283</td>
<td>553,040</td>
<td>156,179</td>
<td>14,949</td>
<td>1,111,400</td>
<td>1,835,548</td>
</tr>
<tr>
<td>12005</td>
<td>5,017</td>
<td>1,495</td>
<td>235</td>
<td>0</td>
<td>6,747</td>
</tr>
<tr>
<td>12006</td>
<td>108,617</td>
<td>32,364</td>
<td>235</td>
<td>0</td>
<td>141,216</td>
</tr>
<tr>
<td>12007</td>
<td>117,791</td>
<td>33,426</td>
<td>235</td>
<td>0</td>
<td>151,452</td>
</tr>
<tr>
<td>12155</td>
<td>101,787</td>
<td>28,885</td>
<td>1,869</td>
<td>6,510</td>
<td>139,051</td>
</tr>
<tr>
<td>Total</td>
<td>2,174,072</td>
<td>600,660</td>
<td>48,372</td>
<td>1,803,715</td>
<td>4,626,819</td>
</tr>
</tbody>
</table>

SOURCES: Proposed 1984 Budgets: General Fund and Debt Service Funds and Proposed 1984 Budgets: Special Funds, City of Saint Paul, Minnesota. Fringe benefits for accounts 02155-02283 were estimated using guidelines published in Proposed 1984 Budgets: Goals and Policies, City of Saint Paul, Minnesota, p. 28. Central service costs for accounts 02155-02283 were estimated by multiplying the sum of wage and salary, fringe benefit, and other nonelectricity costs by an overhead rate computed from the Sewer Repair, Public Works Equipment Services, and Public Safety Equipment Services activities.

These figures include supplies, equipment, fuel, and other expenses; but exclude intracity transfers of funds, most of which represent one-time payments.
CAPITAL ASSETS

In addition to the operating expenses presented above, the Traffic and Lighting Revenue Center will require an extensive array of capital assets to carry out its mission. These assets include hundreds of traffic signals, thousands of street lights, miles of electrical conduit, and the Traffic and Lighting building, as well as a collection of vehicles and machinery. All of these assets wear out with use and eventually have to be replaced.

At present, replacement costs for Traffic and Lighting capital assets are handled in two ways. Some appear in the operating budget. For example, the division has a huge inventory of signs. As these signs wear out, they are refurbished by the sign shop. The costs of the labor, paint, coatings, and sign stock used in the refurbishing are part of the budget for Traffic Operations and Maintenance. For other assets, replacement costs appear in the capital improvement budget. When the lights along a given street reach the ends of their useful lives, for example, their replacement becomes a capital project financed through the capital budget.

Table 6.3 presents estimates of values, useful lifetimes, and annual depreciation for the capital assets used by Traffic and Lighting whose replacement costs are not included in the division's operating budget. Street lights and traffic signals account for most of the division's invested capital. Annual depreciation on Traffic and Lighting capital assets amounts to $1.7 million in 1984 dollars.
Table 6.3
TRAFFIC AND LIGHTING CAPITAL ASSETS

<table>
<thead>
<tr>
<th>Type of Asset</th>
<th>Estimated 1984 Value ($)</th>
<th>Average Useful Lifetime (yrs)</th>
<th>Annual Depreciation ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Street lights</td>
<td>20,520,000(^{b})</td>
<td>40</td>
<td>513,000</td>
</tr>
<tr>
<td>Lighting conduit</td>
<td>4,860,000(^{b})</td>
<td>30</td>
<td>162,000</td>
</tr>
<tr>
<td>Traffic signals 899 Dale Street</td>
<td>17,280,000(^{b})</td>
<td>20</td>
<td>864,000</td>
</tr>
<tr>
<td>Facility</td>
<td>2,651,243(^{c})</td>
<td>40</td>
<td>66,281</td>
</tr>
<tr>
<td>Vehicles</td>
<td>870,000(^{a})</td>
<td>10</td>
<td>87,000</td>
</tr>
<tr>
<td>Machinery and equipment</td>
<td>500,000(^{d})</td>
<td>10</td>
<td>50,000</td>
</tr>
<tr>
<td>All assets</td>
<td>46,681,243</td>
<td>27(^{d})</td>
<td>1,742,281</td>
</tr>
</tbody>
</table>

\(^{a}\) Estimates supplied by Traffic and Lighting Staff.

\(^{b}\) Taken from the Public Works "Shareholder Report."
Values shown there were multiplied by 1.08 to reflect the effects of two years of inflation.

\(^{c}\) Replacement cost from the 1982 Financial Report, multiplied by 1.08 to reflect two years of inflation.

\(^{d}\) Equals total 1984 value divided by total annual depreciation.

OWN SOURCE REVENUES

The success of the Traffic and Lighting Revenue Center will be measured by its ability to find and develop new sources of income. The division's present sources of revenue could be expanded once the division begins to operate as a Revenue Center. Attention is limited to own-source revenues, generated as a result of the division's operations or earmarked for the division's use. They are in contrast to general revenues, such as property tax receipts, that can be used for many purposes.
Currently, the division's own-source revenues feed into the Saint Paul General Fund and are then appropriated back to the Division of Traffic and Lighting. When the division begins to operate as a revenue center, these funds will be credited directly to its accounts, thereby creating more direct and powerful incentives to work for the satisfaction of consumers of traffic and lighting services.

The Traffic and Lighting Revenue Center will rely on four general categories of own-source revenues: earmarked funds, business income, user charges, and street lighting assessments. Earmarked funds come from grants dedicated for the use of Traffic and Lighting. The organizations supplying these funds control their amounts and uses. Business income includes the revenue generated by new ventures that the Revenue Center might initiate. User charges are the revenues that Traffic and Lighting receives by selling its services to consumers. Proceeds from street lighting assessments can be regarded as beneficiary charges but not user charges, because payment of the assessments is mandatory. The high revenue potential of street lighting assessments and the recent controversy surrounding the city's use of assessments to finance services justify extended discussion of this new source of revenue.

Earmarked Funds

Traffic and Lighting's main source of earmarked funds is its share of the street and highway aid that Saint Paul receives from Ramsey County and the state of Minnesota. This aid is earmarked for the construction, maintenance, and operation of the city's streets and highways. In 1984, the portion of this aid set aside for the city's traffic program amounted to $482,810.3

Minnesota's gasoline tax provides much of the street and highway aid that Saint Paul receives. Although the proceeds from that tax can be regarded broadly as a charge for the use of the state's road system, the Division of Traffic and Lighting can do little to influence the yield from the gas tax or the share of the proceeds that the city receives. These revenues are therefore considered earmarked funds rather than user charge receipts.

3Proposed 1984 Budgets: Analysis, City of Saint Paul, p. 61.
The second source of earmarked funds for the division is damage claims. When a private citizen runs into a light pole or traffic controller box with his car, for example, Traffic and Lighting can collect damages from his insurance company. Revenues from this source in 1984 are projected to be $60,000.

Total earmarked funds in 1984 are shown in Table 6.4. They amount to $542,810.

**Business Income**

This source of revenue is based upon new ventures initiated by the Revenue Center. Two possibilities are parking meter advertising and sale of support services. Both sorts of ventures run the risk of provoking accusations of unfair competition by business firms. How far to proceed with them thus necessitates a political judgment.

Traffic and Lighting could probably earn substantial income from advertising on parking meters. It has been offered more than $26 per meter per year to rent space on its meters to a commercial firm. (Such rentals are used in the estimate of business income in Table 6.7.) Self-operation would allow the Revenue Center to pocket the profit margin that would otherwise go to the private firm. In addition, self-operation would open the eventual possibility of selling advertising space on light poles, controller boxes, and other street fixtures maintained by the division.
Table 6.4
1984 TRAFFIC AND LIGHTING REVENUES
FROM EARMARKED FUNDS

<table>
<thead>
<tr>
<th>Source</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traffic and lighting share of street and highway aid</td>
<td>$482,810</td>
</tr>
<tr>
<td>Damage claims</td>
<td>60,000</td>
</tr>
<tr>
<td>All sources</td>
<td>542,810</td>
</tr>
</tbody>
</table>

SOURCE: Proposed 1984 Budgets: Analysis, City of Saint Paul, p. 64; and Proposed 1984 Budgets: Special Funds, City of Saint Paul, p. 102.

Traffic and Lighting provides bread and butter municipal services. Nearly any nearby city can potentially use its capabilities in the areas of sign production, traffic engineering, and meter, signal, and light maintenance. The market extends to include such nonprofit institutions as churches or universities, as well as shopping centers or factories. All have parking lots that need striping. Many of them also have lights that require maintenance. Some private businesses have asked the city to conduct traffic counts. And, of course, many places need signs. Because of economies of scale, the city may be in a position to provide these services at competitive prices. Some reasonable examples are taking over maintenance of parking meters at the state capital to bring in about $13,000 per year, and maintaining street lights in surrounding communities to bring in an additional $7000 per year.
User Charges

Traffic and Lighting could increase the amount of revenue it generates from user charges by imposing new charges or by increasing the rates for the charges it already has. Its biggest user charge is its fee for on-street parking. In 1984, the city’s 2100 plus parking meters are estimated to take in $810,000. Of that amount, $278,000 is set aside for the city’s Parking and Transit fund, leaving $532,000 for Traffic and Lighting. The yield from this source of revenue could be increased, but there are pressures to contain parking rates to encourage people to come downtown. Because of these constraints on the parking rates, current yields are considered appropriate. Traffic and Lighting also receives about $30,000 per year from meter hoarding fees. (These payments cover lost meter revenues when curb space is dedicated to exclusive uses.)

The city issues various permits for use of the streets. The Public Works Office Engineer estimates that 450 such permits would be issued in 1984, for a total revenue yield of $15,750. A modest increase to $40 per permit would raise the annual yield to $18,000.

The fee for permits to control parking by nonresidents in areas with heavy on-street demand (e.g., near the University) is currently $10. It is estimated that 500 such permits will be sold in 1984, for a total revenue yield of $5,000. Division personnel indicated that when the fee was raised from $5 to $10, the number of permits sold changed very little, suggesting that the demand for permits is insensitive to price, hence fee levels could be increased without impairing the effectiveness of the program. A fee level of $15 would raise the revenue yield to $7,500 and allow recovery of the program costs.

Traffic and Lighting currently provides temporary No Parking signs (e.g., for construction sites) for $.50 apiece and expects to sell 2400 in 1984, for a total revenue yield of $1,200. In 1982, the price of these signs doubled, but the number sold fell only slightly, indicating that here also demand is not very sensitive to price. Raising the price per sign to $2.00 would increase revenue yield to $4,800.
Traffic and Lighting has recently instituted a fee for the institution of curb parking controls. Someone who wants to have a special curb parking zone established must pay the city $100 to cover the cost of investigating the situation and producing the necessary signs. The division expects to process 250 such requests in 1984 for a total revenue yield of $25,000.

The user charges considered thus far are already in place. However, there are several opportunities for imposing new charges.

The public works office engineer estimates that billing utilities for time spent in traffic control and inspection of street repairs during utility installation projects would bring in about $24,000 per year. Traffic and Lighting personnel estimate that about a third of this sum should go to the Streets division to reimburse them for their work, for a net yield to Traffic and Lighting of $18,000.

The division currently spends about $50,000 per year on the operation and maintenance of the Opticom signal priority system, which is used by the Police and Fire Departments. Once established as a Revenue Center, Traffic and Lighting would follow the procedures now set up for the city's internal service funds and would bill the public safety departments for the costs of providing this service.

Traffic and Lighting's engineering branch reviews plans for new developments to make sure they will not cause traffic problems. They estimate that in 1984 they will conduct 100 such reviews. A modest charge of $15 per plan review would bring in $1500 annually.

The Division expects to mark 25 detours in 1984. These detours are usually the result of construction work that requires the closing of a street or bridge. Billing the responsible party for the costs of marking the detour would bring in $5000 annually.

Table 6.5 summarizes the opportunities for generating revenue from user fees and charges. Currently, Traffic and Lighting's revenues from these sources amount to somewhat over $600,000 per year. Through a combination of new charges and fee increases, this sum could be raised by more than $80,000.
Table 6.5
1984 TRAFFIC AND LIGHTING REVENUES
FROM USER CHARGES

<table>
<thead>
<tr>
<th>Source</th>
<th>Current Yield</th>
<th>Proposed Yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parking meter receipts</td>
<td>$532,000</td>
<td>$532,000</td>
</tr>
<tr>
<td>Parking meter hooding fees</td>
<td>30,000</td>
<td>30,000</td>
</tr>
<tr>
<td>Street use permits</td>
<td>15,750</td>
<td>18,000</td>
</tr>
<tr>
<td>Residential parking permits</td>
<td>5,000</td>
<td>7,500</td>
</tr>
<tr>
<td>Temporary No Parking signs</td>
<td>1,200</td>
<td>4,800</td>
</tr>
<tr>
<td>Curb parking control fees</td>
<td>25,000</td>
<td>25,000</td>
</tr>
<tr>
<td>Utility installation permits</td>
<td>0</td>
<td>18,000</td>
</tr>
<tr>
<td>Opticom billings</td>
<td>0</td>
<td>50,000</td>
</tr>
<tr>
<td>Site plan reviews</td>
<td>0</td>
<td>1,500</td>
</tr>
<tr>
<td>Detour marking fees</td>
<td>0</td>
<td>5,000</td>
</tr>
<tr>
<td>All sources</td>
<td>608,950</td>
<td>691,800</td>
</tr>
</tbody>
</table>

Neither group nor neighborhood discounts appear feasible as equity protections for Traffic and Lighting services. Each user charge source is individually small; there are so many separate ones that attempting to adjust them for ability to pay is administratively infeasible. Lifeline approaches are not applicable to the traffic and lighting function.

Street Lighting Assessments

The most important single new source of revenue for Traffic and Lighting is represented by assessments for street lighting. Such assessments could conceivably cover the full costs of the street lighting system which, as Table 6.1 shows, accounts for almost half of the Traffic and Lighting budget. However, the recent political controversy over street maintenance assessments in Saint Paul has discredited the whole notion of using assessments to finance city services. Accordingly, it is appropriate to begin the discussion of lighting assessments by exploring the rationale behind them.

'This section draws heavily on the excellent work performed by Donald Sobania, head of Saint Paul's lighting maintenance and operations on the subject of street lighting assessments.
The case for assessments rests on two arguments. The more general one is that assessments raise the public's level of awareness about service cost and quality. Presenting households with an explicit bill for a service makes it easier for them to decide whether they are getting their money's worth. This effect comes about because the assessment isolates the cost of and payment for the service. It would be equally likely to arise from a property tax levy whose proceeds were earmarked for the specific service. The second argument for assessments is that they are fairer than other forms of finance in that they apportion costs more closely in proportion to benefits. This argument has force only if there is substantial unevenness in the distribution of benefits from a service. Police protection, a service that broadly benefits all segments of the community, would be a poor candidate for assessment financing.

In the case of street lighting, this second argument carries great weight. The level of street lighting varies greatly from one area of Saint Paul to another. The spacing between lights can vary from a high of over 300 feet to a low of well under 100 feet. In addition, some areas of the city have only simple lights on wooden poles while others enjoy expensive multiglobe decorative fixtures. In these circumstances, the present system of property tax finance forces households to pay equal amounts for highly unequal levels of service.

A proposal to finance street lighting through an assessment must deal with a number of basic issues. First, it is necessary to decide what portion of the street lighting system is a public good, providing general benefits, and what portion is private. Second, the proposal must describe the costs of the system and hence also the required yield of the assessment. Third, the proposal must define a unit of lighting service in a specific enough way that it can be used to compute bills. Fourth, it must provide some form of protection for disadvantaged property owners. Finally, it must address the operational and administrative questions that any proposal of this magnitude inevitably raises.
Defining the public good component in street lighting requires a political decision. The staff of the Division of Traffic and Lighting have identified four cases in which lighting provides general benefits—public goods: at intersections, along arterial streets, for crime control, and "basic" or lifeline levels of residential street lighting. (The last assures some access to the service by all parts of the community.) The analysis of lighting assessments, however, assumes for convenience that assessments will cover the full cost of the system. The results can easily be adjusted to reflect Saint Paul's decisions about what constitutes the public good element in street lighting.

The full costs of the street lighting system are defined as the sum of three components. The first is the cost of operating the system itself. The second is the annual cost of the capital assets used to produce lighting service. This cost is indicated in Table 6.3, although some calculations must be made to split out the share assignable to lighting. The full costs of street lights and lighting conduit are assigned to the lighting system, as well as a share of the costs of the division's facilities, vehicles, and major equipment. Lacking more detailed information, the share of costs assignable to lighting is computed by taking the ratio of the number of people employed by lighting to the total number of people employed by lighting, signals, and traffic operations. The third cost component is lighting's share of the cost of the support services provided by the Traffic and Lighting Maintenance Bureau (see Table 6.1). Once again, the share assignable to lighting is computed on the basis of number of employees.

Table 6.6 computes the full cost of providing street lighting and defines the lighting assessment revenue yield needed to cover that cost. Altogether, it would be necessary to raise about $2.7 million to fully cover the cost of providing street lighting.
Table 6.6
TOTAL 1984 STREET LIGHTING COSTS

<table>
<thead>
<tr>
<th>Item</th>
<th>Total Cost</th>
<th>Percent Applied</th>
<th>Lighting Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Costs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lighting Operations and Maintenance</td>
<td>$1,835,548</td>
<td>100</td>
<td>$1,835,548</td>
</tr>
<tr>
<td>Traffic and Lighting Maintenance Bureau</td>
<td>225,592</td>
<td>39</td>
<td>87,981</td>
</tr>
<tr>
<td>Annual Capital Costs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Street Lights</td>
<td>513,000</td>
<td>100</td>
<td>513,000</td>
</tr>
<tr>
<td>Lighting Conduit</td>
<td>162,000</td>
<td>100</td>
<td>162,000</td>
</tr>
<tr>
<td>Facility</td>
<td>66,281</td>
<td>39</td>
<td>25,850</td>
</tr>
<tr>
<td>Vehicles</td>
<td>87,000</td>
<td>39</td>
<td>33,930</td>
</tr>
<tr>
<td>Machinery</td>
<td>50,000</td>
<td>39</td>
<td>19,500</td>
</tr>
<tr>
<td><strong>Total Lighting Cost</strong></td>
<td><strong>2,677,809</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SOURCES:** Tables 6.1, 6.2, 6.3.

It is impossible to determine the precise burden per household that this figure implies without a detailed examination of the location of each of the city's street lights. However, it is possible to form a rough sense of the necessary magnitude of annual payment. To do this, we must make some assumptions:

1. The share of the total lighting assessment paid by commercial properties is the same as the share that they now pay of street maintenance assessments.
2. The average rental property contains four rental units.
3. The average rental property pays twice as much per year in lighting assessments as the average owner-occupied property.

With these assumptions, full coverage of street lighting costs would require that the average homeowner pay $22 per year, or a little under $2 per month. If, as seems reasonable, the city decides to cover the cost of lighting intersections from general revenues, the average annual payment per homeowner drops to about $17.
To establish horizontal equity, each dwelling should pay an assessment commensurate with the service received. Service is a function of the type of fixture provided and the number of fixtures present. Adjustment in assessments would reflect the quality and number of fixtures that benefit each household.

An assessment for street lighting would require information from the lighting portion of the infrastructure inventory that is due to be completed by the end of 1984. It is conceivable that bills could be sent out in 1985 to recover 1984 costs.

Although further investigation would be needed before definitive judgment could be made, it appears now that the job of computing bills could be carried out on Department of Public Works computers, which could forward a tape to the Ramsey County tax collector containing information for inclusion on property tax bills.

The Equity Dimension of Special Assessments

Any proposal for relying on assessments must provide some form of protection for disadvantaged property owners. One alternative is a mechanism for allowing households to choose the amount of lighting they desire. Another is a system for allowing property owners to defer payment of the assessment.

It is possible to give property owners some say over how much lighting they will receive and pay for. In the recent budget crunch, the city turned off many lights as an economy measure. It is fairly simple to allow property owners along a block to vote on how many lights they want lit. Assessments would depend on electricity consumed. A more radical proposal would be to allow them to choose the number of fixtures. Light poles could be removed or added. Because of the costs of making these alterations, it would be necessary either to place restrictions on the frequency with which changes could be made, or else to bill property owners for the costs of making them. Allowing choice over the level of service provided gives lower income neighborhoods a way of reducing their assessments.

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*See Facility Inventory Report, City of Saint Paul, March 1983, p. 23.*
A second form of equity protection is based on the option of deferring payment of the assessments. These deferred payments would accumulate as a lien on the property and would be paid off at the time the property is sold. This approach provides an excellent way of dealing with an endemic problem—elderly homeowners whose cash incomes are low. Deferrals could also help young families struggling to make ends meet after purchase of their first home.  

Saint Paul should charge a full market rate of interest on deferred assessments and open eligibility for deferrals to everyone. Charging a market rate of interest will prevent people from using deferrals as a cheap line of credit. Universal eligibility has the dual effect of greatly reducing administrative costs by eliminating means testing while guaranteeing that no special hardship cases slip through the cracks of the program.

There is little risk associated with a deferral program. At $17-$22 per year, it is highly unlikely that the assessments will accumulate to a very large sum. Although deferrals will temporarily reduce the cash flow from assessments, they will immediately generate new net revenue for Saint Paul.

THE REVENUE CENTER BUDGET

By how much can charges discussed here reduce the amount of General Fund revenue support required by the Division of Traffic and Lighting? Table 6.7 attempts to answer that question.

The top panel shows 1984 capital and operating costs for the Division of Traffic and Lighting. The left column is based on the Proposed 1984 Budget, and the right column describes the Revenue Center operation. The figures for labor and other operating costs under current operation are taken directly from city budget documents. The figures for fringe benefits and central service costs have been expanded to reflect the level of these costs for the General Fund Activities.

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6See Donald C. Shoup, "Financing Public Investment by Deferred Special Assessment," National Tax Journal, Vol. 3, No. 4, December 1980. See also Sec. III of this Note.
Table 6.7
TRAFFIC AND LIGHTING GENERAL REVENUE REQUIREMENTS ($1984)

<table>
<thead>
<tr>
<th>Item</th>
<th>Current Operation</th>
<th>Revenue Operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Labor</td>
<td>2,008,338</td>
<td>2,174,072</td>
</tr>
<tr>
<td>Fringe benefits</td>
<td>555,240</td>
<td>600,660</td>
</tr>
<tr>
<td>Central services</td>
<td>43,081</td>
<td>48,372</td>
</tr>
<tr>
<td>Other operating costs</td>
<td>1,593,915</td>
<td>1,803,715</td>
</tr>
<tr>
<td>Net capital costs</td>
<td>1,326,230</td>
<td>1,326,230</td>
</tr>
<tr>
<td>Total</td>
<td>5,526,804</td>
<td>5,953,049</td>
</tr>
<tr>
<td>Own Source Revenues</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Earmarked funds</td>
<td>542,810</td>
<td>542,810</td>
</tr>
<tr>
<td>Business income</td>
<td>0</td>
<td>74,730</td>
</tr>
<tr>
<td>User charges</td>
<td>608,950</td>
<td>691,800</td>
</tr>
<tr>
<td>Lighting assessments</td>
<td>0</td>
<td>2,677,809</td>
</tr>
<tr>
<td>Total</td>
<td>1,151,760</td>
<td>3,987,149</td>
</tr>
<tr>
<td>General Revenues</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Direct general fund</td>
<td>2,157,090</td>
<td>977,899</td>
</tr>
<tr>
<td>Indirect general fund</td>
<td>474,673</td>
<td>0</td>
</tr>
<tr>
<td>Capital improvement funds</td>
<td>1,743,281</td>
<td>988,001</td>
</tr>
<tr>
<td>Total</td>
<td>4,375,044</td>
<td>1,965,900</td>
</tr>
</tbody>
</table>

The Revenue Center costs are derived in a similar way from the Departmental Request Budget as expanded to reflect additional administrative costs. Their derivation is shown above in Table 6.2. Capital project costs are equal to annual depreciation for Traffic and Lighting capital assets less the capital project funds now flowing into the division. (The latter adjustment is necessary to avoid double counting.) Altogether, costs for the Revenue Center operation are more than $400,000 higher than those implied by the proposed 1984 budget.

The derivation of estimated own source revenues for the two operations is described above. Currently the division has a little over a $1 million in own source revenue. As a Revenue Center it could raise this figure to almost $4 million.
For the current operation, net direct General Fund requirements are computed by subtracting the division's own source revenues from the appropriation called for in the proposed 1984 budget. Net indirect General Fund requirements cover the fringe benefit and central service costs that do not appear in the division's budget. Net capital improvement funds are set equal to annual depreciation for Traffic and Lighting capital assets on the assumption that over the long term this amount is what the city would have to spend. For the Revenue Center operation the figures are computed somewhat differently. Net capital improvement funds are equal to annual depreciation less the portion of capital costs covered by the street lighting assessments. Net indirect General Fund requirements are equal to zero because as a Revenue Center the division will budget full costs. Finally, net direct General Fund requirements are computed as a residual. Specifically, they are equal to total costs less total own source revenues less net capital improvement funds. Altogether, the changes described above reduce total general revenue requirements from almost $4.4 million to less than $2.0 million.

Although the amount of General Fund revenue needed to balance the budget of the Traffic and Lighting Revenue Center must be computed as a residual, it would be unwise to budget in this way. Basing General Fund appropriations on the difference between costs and own-source revenue weakens the incentives for superior financial performance. Under such an arrangement, if the Revenue Center fails to meet its targets for own-source funding, it would simply be bailed out. If it surpasses its targets, the surplus would be taxed away. There would be less reason then to work hard to control costs or to seek out new sources of revenue.

To preserve incentives, the amount of general revenue received by Traffic and Lighting should be kept independent of the Revenue Center's financial performance. Contracting-in (an agreement whereby the General Fund purchases public good services from the Revenue Center in exchange for a multiyear financial commitment) provides one way of maintaining
the necessary independence. Revenue requirements that do not lend
themselves readily to the contracting-in relationship can be handled
through an agreement by the central administration to provide a fixed
amount of funding that grows at the same rate as the Revenue Center's
costs. The amount of this funding should be based on the estimated
steady-state requirements of the Revenue Center as shown in Table 6.7.

CONCLUSIONS

A large portion of the reduction in General Fund revenue
requirements projected for future years comes about because of the use
of special assessments to finance street lighting. The move toward
assessments can be justified on its own merits as a way of improving the
horizontal equity with which the costs of this service are apportioned.
Assessments will also provide the new Revenue Center with a large,
stable, and important source of financing. Deferrals will substantially
reduce vertical inequity problems.

The practical success of the Traffic and Lighting Revenue Center,
however, depends on its ability to produce and market new services. To
meet the targets established here for growth in user charge and business
income will require a great deal of entrepreneurship on the part of the
division's workers and management. That entrepreneurial activity will
lead to improvements in productivity and responsiveness and guarantee
the continuing provision of quality service to the households and
businesses of Saint Paul.
PART THREE: CONCLUSIONS
VII. LESSONS LEARNED

by

Anthony Pascal

CURRENT STATUS

The growth of benefit-based financing is an established fact. It is the fastest expanding category of local government finance. Both municipal and county governments use it. The list of services and functions to which it is applied enlarges daily. Various factors account for this growth. Taxpayer resistance, often resulting in official fiscal lids, pinches government budgets. Fairness demands that those who consume services with only limited public good attributes or redistributive intentions should pay a larger part of the cost. Efficiency in consumption is furthered by imposing costs on those who use public resources. Efficiency in production is fostered in agencies sensitive to customer preferences.

Much less apparent is the development of built-in devices to sustain vertical equity in fiscal systems moving toward beneficiary-based finance. The adoption of fees, charges, and special assessments does indeed free fiscal resources for the provision of public and redistributive goods, highly important to the disadvantaged. But there are lags in the modification of the charges and assessments themselves. Our survey uncovered only scattered instances of lifeline rates, group discounts and assessment deferrals. We found no examples of areal rebates. The 100 plus responding jurisdictions, it should be remembered, were nominated by knowledgeable observers as pathbreakers in the use of benefit charges.

Our three case studies confirmed the tractability of more deliberately equitable benefit-based financing. Trial fee exemptions for low income groups can actually increase the equity of the system, from the standpoint of ability to pay. Adjusting emergency medical service charges on the basis of neighborhood income affords considerable
protection to the disadvantaged. In the case of street lighting assessments, the deferral option relieves the elderly homeowner's cash flow problems while permitting augmented public service. In all three case studies, equitable beneficiary charges promised to raise more revenue and enhance efficiency while safeguarding the welfare of the less fortunate.

EXTENDING EQUITABLE BENEFIT-BASED FINANCE

The prerequisites for the effective implementation of this concept take the form of four stricutures: Anticipate political opposition, assemble and analyze the right information, make some hard choices, and mount appropriate experiments.

Anticipate Political Opposition

Moving toward benefit-based financing--and complicating the situation even further by trying to preserve equity--is bound to provoke political reactions. Some counterstrategies are offered.

Potential Opponents. Many different groups may initially oppose the imposition of benefit-based finance. Taxpayers will object to more exactions. Public employees will resist switching to an unfamiliar and less predictable method of operation. Advocates of the poor will fear a move toward regressivity. Politicians will fight the loss of control implied by financing public service through collections from consumers rather than through appropriations decisions of legislators. Moreover, politicos may prefer to avoid the explicit choices on redistribution required to set eligibility requirements or to fund discounts and Supervoucher systems.

Responses. The counterarguments are inherent in the preceding sections of this Note. Whether beneficiary charges constitute replacements for or additions to taxes will largely depend on the revenue situation of the adopting jurisdiction. The more they replace taxes the more additional consumption and production efficiency. Thus there is a tradeoff between revenue raising on the one side and efficiency gains and taxpayer relief on the other. Good government and taxpayer organizations should favor beneficiary charges, at least when they promise to substitute for property and other local taxes.
The reply to resistance by employee groups is twofold, again paralleling the two objectives of beneficiary charges. When the charges are designed to raise new revenues they may actually save civil service jobs, which would otherwise disappear because of budget shortfalls. More callous if no less true is the second reply: Enhanced efficiency often carries the burden of additional risk. But some employees--staff and management both--will actually welcome the opportunity to innovate.

The devices designed to minimize vertical inequities--discussed in Secs. III through VI above--require sophisticated and effective articulation. Promulgators of equitable benefit-based finance must prepare themselves to show how the reforms they propose do in fact maintain fairness. In many cases the need for explicit protection devices is obviated by a showing that disadvantaged groups are not frequent users of the public service for which charges are contemplated, or at least not as frequent as might have been thought.

The concerns of politicians evoke no completely satisfactory replies. Loss of control will occur. However, the loss of political control over private good types of services seems justified. A competitive solution, after all, is simply to privatize these services. And some control will persist through mayor and council input into capital allocation procedures, personnel code enforcement, and the fixing of subsidy levels for those services with public good content or that call for guaranteed access by the disadvantaged.

Requiring politicians to be explicit on redistribution poses a real problem for egalitarians. Equity advocates want society to acknowledge the just claims of the disadvantaged, but they realize that covert forms of redistribution--e.g., through free recreation programs for all--may aggregate to a larger total transfer than would more explicit mechanisms--e.g., recreation vouchers for the poor.

Assemble and Analyze the Right Information

Good financial systems require good data. For an equitable benefit-based system the data requirements weigh heavier still.
Full Cost Accounting. In calculating beneficiary charges, knowing the true cost of the service marks the starting point. The costs of capital and a fair share of overhead and other forms of administration must be taken into account.¹ If producers and consumers do not know the full resource cost of the service provided, they cannot make rational decisions about how much to produce and consume. Many existing municipal and county systems currently lack the cost accounting capability that would produce the numbers required to set effective charges.

Knowledge of Markets. Charge designers need to know market conditions for the service in question for at least two reasons. First, revenue forecasting requires estimates of the relation between price and quantity consumed. How many fewer library memberships will be sold as the membership fee climbs from x to y dollars per year? Demand elasticities must also be calculated for monopoly services where prices can be set to maximize net revenues.

Second, a public service may have such a close private market substitute that charges for the former need to be sensitive to prices for the latter. Think of paramedic vs. private ambulance services, public library books vs. books from lending libraries, municipal golf courses vs. private golf courses. The public charge cannot greatly exceed the private but neither need it fall very short.

The Incidence of Consumption, meaning who uses how much. To gauge the desirability of protection devices, we need to know how imposing a charge on the item in question would affect the budgets of target group households. If the effect is trivial, the inequity can probably be ignored. Then, too, summing up levels of consumption across all of the services subject to charge yields an upper bound to the drawing rights under the Supervoucher scheme.

Defining Target Group Eligibles. Data to determine what persons or households in the community have the characteristic defining eligibility is critical. It is easy enough to ascertain age and address, although even for these attributes misrepresentation is possible. Determining income or physical disability poses tougher problems. Sec. III above suggests that the best solution might involve kicking the problem upstairs. Eligibility for discounts or deferrals or Supervouchers could depend on certification for welfare or food stamps, Medicaid, or unemployment compensation.

Make The Hard Choices

Three basic problems demand resolution. Because they all require data unlikely to be available, or pure political input, there are no ready technical solutions. A lively debate among interest groups, say through representatives on a task force or advisory panel, could be the best vehicle for making these decisions.

Determining the Public Good Subsidy for Each Government Service. Theoretically, we could determine the social as opposed to the individual consumer's benefit of afterschool recreation programs. It would require, for example, ascertaining the reduction in juvenile delinquency associated with participation in city park athletic leagues and the dollar cost of juvenile crime to the community. Similarly with fire service (the value of preventing conflagration vs. saving an individual dwelling) and library service (the value of a better educated citizenry vs. the enjoyment of books by an individual reader) and trash collection (a tidy and sanitary community vs. convenience to individual householders). But practically, no such information exists. Instead rough and ready rules will apply. For example, and purely hypothetically:

- A 100 percent subsidy (no individual charges) for residential fire suppression.
- A 60 percent subsidy for basic library service.
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- A 30 percent subsidy for youth recreation programs.
- A 10 percent subsidy for solid waste collection.

But someone or some group has to make the rules. And the rule makers must be accorded legitimacy by the community's taxpayers and service consumers.

**Defining Eligibility for Equity Protection.** Rules on eligibility also need drafting. Should the poor be protected? What about the old, even if not poor? Children? To what age? How serious a handicap qualifies an individual as disabled? Again chief executives and constituted legislative bodies may want to consult citizen task forces when resolving such issues.

**Deciding on the Amount of Equity Protection.** Even knowing which services qualify for equity protections and who may be accorded such protection does not suffice. The magnitude of protection needs setting. For instance, the total Suppervoucher drawing rights for a family of four with an income of $10,000 must be established; it will be determined by the generosity of the community and by the strength of competing public priorities such as protecting order and safety, preserving amenities, fostering culture and so on. At a less lofty level, the community, or its designated representative, has to set lifeline rates for trash collection, senior discounts at the library, swimming pool rebates in poor neighborhoods, and the like.

**Mount Some Experiments**

Equitable benefit-based finance is new. All the answers are not available. Experimentation therefore seems appropriate. But the necessary adjuncts to an experimental approach are a commitment to systematic evaluation and a readiness for courageous revision.

Experimental benefit-based systems need to be designed to evaluate many features. For example, administrative or collection costs for some charges may make the equitable benefit-based approach not worth pursuing. Revenue may fail to meet projections or, just as embarrassing, may too greatly surpass them. Managers may set charges to exploit a monopoly situation. Political reactions to neighborhood
rebates may be so sharp as to invalidate the notion. Insufficient equity protection for some kinds of services may evoke considerable complaints from disadvantaged consumers of that service. Employee morale may wane.

Such problems will reveal themselves as a result of continuing evaluations. Independent appraisal efforts should gauge success and failure of the various experiments through objective and scrupulous examination of data on costs, effects, coverage, access, and satisfaction. Attitudes of consumers, managers, and workers should be monitored. The experimental charge systems should be continually contrasted with traditional tax support of conventional agencies.

Boldness in instituting charge systems should be matched by boldness in revising plans where they prove intractable or infeasible or perverse in their effects. A spirit of pragmatism will help bring about the fiscal amplitude, operating efficiency, and fair treatment that equitable benefit-based finance so enticingly promises.