Establishing a Price for Government Services

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Establishing a Price for Government Services

John L. Crompton
Charles W. Lamb

Pricing is one of the most technically difficult and politically sensitive areas in which public service managers have to make decisions. Pricing decisions are influenced by a myriad of ideological, political, economic, and professional arguments. The debate that accompanies this diversity of perspectives, however, should be focused on some sound principles. The intent of this paper is to present a logical approach to establishing a price.

The approach suggested here consists of three stages (Figure 1). Stage 1 requires an agency to determine what proportion of the costs incurred in delivering a service should be recovered from direct pricing. Deriving a price based only on the costs of service delivery ignores market considerations. Stages 2 and 3 ensure that the price is market sensitive. Stage 2 considers the going rate charged for similar services by other public agencies and/or the commercial sector, which may add to the cost-based price being adjusted downwards to ensure that it is perceived as "reasonable." In Stage 3, the appropriateness of varying the price for some user groups or in particular contexts is considered.
The price setting principle most widely accepted by economists is marginal cost pricing because it maximizes economic efficiency. Marginal cost is defined as the addition to total cost resulting from the addition of the last unit of output. If it is intended to recover marginal costs, then a service is provided at a price equal to the cost of providing an additional unit of service, or the cost of serving the incremental user. Each user pays the additional cost caused by his or her specific use of the service. While the practicing public sector
manager may concur that in principle marginal cost pricing is conceptually superior, he or she is likely to argue that it is too difficult to implement and for this reason it is not discussed further in this paper.

Economists classify services into three categories: public, merit, and private services. Much of the debate about whether or not user prices should be levied, and if so at what level, revolves around the classification of the services as one of three types. The differences between these categories are summarized in Figure 2.

This classification provides the economic rationale upon which decisions about user pricing of public services should be based. It

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**FIGURE 2**

Differences between services with Public, Merit, and Private Characteristics

- **PUBLIC SERVICE**
  - All People in the community
  - Not feasible: individuals cannot be priced and/or it is undesirable that they should be priced
  - The community through the tax system: no user charges

- **MERIT SERVICE**
  - Individuals who participate and all other in community
  - Feasible and desirable: individuals can be priced
  - Individual users pay partial costs

- **PRIVATE SERVICE**
  - Individual who participates
  - Feasible and desirable: individuals can be priced
  - Individual users pay full costs

---

**Type of program or service continuum**

Who benefits?

Economic desirability or Technical Feasibility of pricing

Who pays?
assumes that the objective is to price each service at a level that is fair to both users and non-users. It helps the public service manager determine which services lend themselves to monetary pricing, at what basis, on what level, and with what effects.

If a service exhibits the characteristics of a private service, its benefits are received exclusively by users rather than by the rest of the community. The case for financing a government service through direct charges to the user is clear-cut when the service is perceived as private. When someone receives a direct benefit from government it seems only fair that he or she should pay for it. If no benefits from a service accrue to other citizens, then it is not reasonable to expect them to subsidize the cost through the tax system.

Government agencies provide a substantial number of essentially private services that, because of historical accident, failure of the private sector to offer a service, the need for quality controls, or where monopolies are necessary to achieve efficient economies of scale (for example, the Postal Service and water and electricity supplies) are provided by government. Water and sewage, public transport, parking spaces, refuse collection, electricity, public marinas, and golf courses are examples of services and facilities that usually exhibit private service characteristics.

Viewing public and private types of services or opposite poles of a continuum is helpful in understanding the essential differences between them, but most government services lie somewhere between the two poles. Such services are called merit services. Merit services have been defined in several ways, but fundamentally they are private services that have been endowed with the public interest. In the case of merit services, the individual receives more of a private service than he or she would have purchased on his or her own.

Although it is possible to levy user prices for merit services, it is not reasonable to expect users to cover all costs because the spill-over benefits are received by the whole community. Users should be subsidized only to the extent that benefits to the whole community are perceived to occur.

Urban transit services offer an illustration of a merit service. Most urban mass transit systems charge relatively low fees which do not cover the full costs of transit operations. Urban transit is thus recognized as a merit service. The requirement that the users pay some price recognizes that they receive extra increments of benefit that do not accrue to nonusers. However, nonusers subsidize the
service since they derive the benefit of reduced traffic congestion. If fares were raised and were successful in recovering full-costs, many riders would opt to use automobiles and traffic congestion would be increased, causing a loss of benefits to nonusers.

Most government services for which a user price is charged are not totally self-supporting. Most are partially supported by tax funds, which suggests that such services are perceived as merit rather than private services. However, tax subsidy can only be justified if collective benefits accrue to the majority of the community that subsidizes the service.

Once a jurisdiction has classified each of its services as public, merit or private, it is in a position to consider the price which should be charged. There are three approaches to establishing a price based on recovering some predetermined proportion of costs: full cost recovery, partial overhead pricing, and variable cost pricing. The conceptual relationship between these three cost recovery methods and the public-private services continuum is shown in Figure 3.

**FIGURE 3**

THE RELATIONSHIP BETWEEN TYPE OF SERVICE AND COST RECOVERY STRATEGY

<table>
<thead>
<tr>
<th>TYPE OF SERVICE CONTINUUM</th>
<th>COST RECOVERY CONTINUUM</th>
</tr>
</thead>
<tbody>
<tr>
<td>PUBLIC</td>
<td>NO PRICE CHARGED</td>
</tr>
<tr>
<td>QUASI-PUBLIC</td>
<td>VARIABLE COSTS</td>
</tr>
<tr>
<td>QUASI-PRIVATE</td>
<td>PARTIAL OVERHEAD COSTS</td>
</tr>
<tr>
<td>PRIVATE</td>
<td>FULL COST RECOVERY</td>
</tr>
</tbody>
</table>
FULL COST RECOVERY

Full cost recovery is also termed average cost pricing. The price of a service is intended to produce sufficient revenue to cover all the fixed and variable costs associated with the service (however these have been defined in the cost accounting system) and enable the break even point to be reached. Because the total costs of a service are divided among those who receive it, full cost recovery is sometimes called the "fair price." For example, in the case of a hospital, if patients in need of care pay the full unit costs, the hospital breaks even. This is considered fair because no one has been "taken advantage of." Figure 4 shows how to determine a price which is intended to recover full costs.

Full cost recovery is an appropriate strategy for those services perceived to exhibit the characteristics of private services which benefit only users and offer no external benefits to the general community. Full cost recovery pricing is most commonly used by government agencies in the pricing of tolls for highways, airports and bridges, sanitation services, hospital services and utilities. These are perceived to be private services operating on a self financing basis.

PARTIAL OVERHEAD COST RECOVERY

If the intent is to recover partial overhead costs then a price is established which meets all direct operation and maintenance costs and some proportion of fixed costs. The remaining proportion of the fixed costs which it is not intended to recover represents the tax subsidy given to the particular service. Figure 5 shows how to determine a price which is intended to recover partial overhead costs.

Conceptually, the proportion of fixed costs which should be subsidized is dependent upon the extent to which non-users benefit from a user utilizing a service. As the benefits which accrue to non-users increase, the proportion of fixed costs met by the subsidy should increase (Figure 3).

It is important to note that the anticipated per person subsidy is built into the formula. This is a very different approach to the frequent practice of assigning, say, a 20 percent overhead figure to direct operations and maintenance costs, because this latter ap-
PRICING TO RECOVER FULL COSTS

A price which is intended to recover full costs is determined by using the following formula:

\[
\text{Average Cost Price} = \text{Average Fixed Cost} + \text{Average Variable Cost}
\]

Where:

\[
\text{Average Fixed Cost} = \frac{\text{Total Fixed Costs}}{\text{Number of Users}}
\]

\[
\text{Average Variable Cost} = \frac{\text{Total Variable Costs}}{\text{Number of Users}}
\]

If: \( \text{Total Fixed Costs} = 1000 \)  
\( \text{Total Variable Costs} = 500 \)  
\( \text{Projected Number of Users} = 100 \)

Then: \[
\text{Price} = \frac{1000}{100} + \frac{500}{100}
\]

Thus: \( \text{Price} = $15 \)
FIGURE 5

PRICING TO RECOVER PARTIAL OVERHEAD COSTS

A price which is intended to recover partial overhead costs is determined by the following formula:

\[
\text{Partial Overhead Recovery Price} = \text{Average Fixed Cost} + \text{Average Variable Cost} - \text{Average Subsidy}
\]

Where:

Average Subsidy represents the amount to which each user is subsidized out of tax funds.

If:  
Average Fixed cost = $8  
Average Variable Cost = $4  
Average Subsidy = $3

Then: the Partial Overhead Recovery Price = $8 + $4 - $3

Thus, the service would be priced at $9.
proach does not indicate the extent to which individuals are subsidized. If it is decided that a service should be subsidized then the subsidy should be made explicit in the budget and built into the authority’s financial control system. This is important because managers responsible for services should set performance targets based on costs, subsidies and targets. Lack of attention to subsidies expressed on a per unit or per capita basis is likely to lead to substantial inefficiency in the allocation of resources and inequities in service delivery. Users of Service A may be receiving much larger subsidies per capita than users of Service B, even though the price they pay is the same, because the costs of operating the two services are substantially different.

**Variable Cost Recovery**

If variable cost recovery pricing is used, the established price is equal to the average variable cost of providing a service. In this context, variable costs are used synonymously with direct operating and maintenance expenses. No attempt is made to contribute toward meeting fixed costs. Figure 6 shows how to determine a price which is intended to recover variable costs.

Because direct operating and maintenance expenses can be easily documented, there is a tendency to base price decisions upon them. This is a popular approach with many agency personnel because when fixed costs are omitted, a relatively low price can be charged and a larger client support constituency is likely to emerge. However, it is also argued that the facilities and amenities offered by government agencies add to the quality of life or to the "livability" of a community. There are benefits to some non-users from knowing that facilities exist (this "opportunity to acquire" is sometimes called "option demand"), and non-users should therefore pay the indirect fixed costs required to make these amenities and facilities available.

**STAGE 2: CONSIDER THE GOING RATE PRICE**

At the end of Stage 1, a provisional price should have been determined based upon the proportion of costs which it is expected to recover. However, pricing based on costs is not market oriented because it assumes that service users will pay the suggested price.
FIGURE 6

Pricing to Recover Variable Costs

Variable cost recovery price = \frac{\text{Total variable costs}}{\text{Number of participants}}

If: Total variable cost = $500

Projected number of participants = 100

Then: Variable cost recovery price = $5
This may be a false assumption. Stage 2 of the process for establishing a price is intended to ensure that the provisional cost-based price is adjusted, if necessary, so it is responsive to the willingness and ability of users to pay (Figure 1).

Determining the going rate requires that a survey of prices charged by other suppliers of this service be undertaken. Usually this survey will be confined to other government agencies, but in situations where a service is also offered by commercial suppliers they should be included in the price survey. For example, if a jurisdiction offers day care services it should include private day care suppliers in its going rate survey. The agency may then adjust its cost-based price in order to ensure that the public day care opportunity does not impede the success of private day care suppliers or reduce the range of day care opportunities available. If the public facility charges substantially lower than private suppliers it might be detrimental to these suppliers and may lead to congestion of the agency’s own facilities.

Adjusting a price so it is consistent with the going rate has two major advantages. First, it may be argued that the going rate price range represents the collective wisdom of professionals in the field, and elected officials in other jurisdictions, as to what constitutes a reasonable price. For this reason, a price within the range will probably avoid controversy and be regarded by most publics as "fair." For example, if the survey reveals that an agency's prices are lower than those charged by others for a similar service, then it provides strong justification to both user publics and elected representatives for an increase in price.

A second major advantage accruing from comparing existing prices with those charged for similar services elsewhere is that it establishes the range of prices which are likely to be acceptable to users of a particular service. It is possible that services may not be exactly the same quality or serve identical types of client groups, but in most cases there are likely to be substantial similarities between services.

Determining the going rate forces an agency to address what potential client groups are willing to pay for a particular service. It is a misconception to believe that costs should necessarily determine price, for often the prices which an agency charges may be used to determine costs. For instance, if a craft program were being priced, a community education agency might first try to find out what prices it can reasonably expect its potential client groups to pay. When it
has this information the agency works backwards from this figure to
determine the nature of the materials, equipment and facilities
which are suited to such a price.

The going rate price is not "the manager's impression" of what
others are charging. It is found by formally surveying what is being
charged elsewhere. It may be argued that if the provisional price
based on recovery costs in Stage I is to be substantially adjusted so
it is in accord with the going rate, then Stage I may be omitted. This
would be a mistake. The going rate often bears little relation to the
cost of provision. As a result, if Stage I were omitted, sound financial
management would not be possible and substantial inequities be-
tween services might emerge as some would be more heavily sub-
sidized than others. Without Stage I a jurisdiction would not be able
to consciously trade-off the opportunity cost of one service compared
to another, and would not know whether it should price a service at
the high or low end of the range of going rate prices.

**STAGE 3: EXAMINE THE APPROPRIATENESS
OF DIFFERENTIAL PRICING**

At the end of Stage 2 the adjusted price is accepted as the average
price which service users should be charged. However, Stage 3
recognizes that there are occasions when offering variations of this
price to particular groups may achieve more equitable and efficient
service delivery (Figure 1).

Price examining the appropriateness of differential opportunities
means that an agency considers charging a different price to
different groups for the same service, even though there is no
directly corresponding difference in the costs of providing the
service to each of those groups. Such market oriented price
adjustments assume that the market is segmentable and the segments
show different price elasticities of demand. A fundamental require-
ment for an agency to be able to offer the same service at two or
more prices is that it must not arouse resentment from a majority of
clients, or else antipathy will be created and goodwill lost.

There are six criteria available for dividing a clientele into
distinct user groups within which there may be differential pricing
opportunities: participant category, product, place, time, quantity of
use, and incentives to try. Although each is discussed separately,
there are sometimes opportunities to use some of them together.
Price differentiation on the basis of participant category is usually related to a perception that some groups may find it difficult to pay a recommended price. Three groups are frequently identified as less able to pay. They are children, senior citizens, and the economically disadvantaged. Differentials for each of these groups are widely used by government agencies, although the rationale for offering services at a reduced price to senior citizens has been challenged in recent years because of the elderly’s substantially improved economic status.

Differential pricing on the basis of product may be used to offer client groups extra levels of service, for example, in trash collection, street cleaning, street parking, park maintenance, police patrols, or foreign language instruction. The agency would provide a basic level of service, but those clients who wanted a higher level could receive it by paying a higher price, just as those extra services in some instances are now purchased from private sources. The prices for these added services would be set to cover the incremental costs of providing them.

Differential pricing could also serve as a market test of the public’s preferred level of service for it offers a method for trying out and responding to the public’s desire for quality changes in public services. The consumer who desires a quality differential could pay for that option—a choice now frequently denied him or her when quality changes must be financed from general revenue. Presumably, if a large proportion of a clientele opted for a higher level of service, then it would become the new norm.

Pricing that differentiates on a place basis is commonly practiced at spectator events. For example, at a concert, theater or sports event a higher price is charged for front-row than for back-row seats.

The most common use of price differentials based on place relates to higher prices charged to non-residents. Such differentials are relatively easy to impose since non-residents are likely to have relatively little political influence outside of their own jurisdiction. For example, state universities charge out-of-state residents a higher price for tuition than residents. The rationale for such pricing is that residents frequently pay at least some of the costs associated with a service through their property taxes, while non-residents make no such payments. This rationale may not be appropriate if services are paid for from other tax sources, for example a sales tax. In this case, people living outside the community may legitimately argue that
since they purchase a variety of goods from within the community, they have contributed their fair share of sales tax. Hence, there is no rationale for charging them more than residents for use of these services.

At the municipal level, the authority of agencies to impose differential prices based on residence varies between states. As a result, such agencies must be aware of relevant statutes and court decisions in their particular jurisdictions to determine their authority to impose a different price for non-residents. Generally, if a municipality can demonstrate a reasonable relationship between the differential price and legitimate governmental goals, the price will be upheld in the courts.

If a service is being used to capacity, then a high differential price may be an effective method of discouraging non-resident use. However, if a service has spare capacity, then an agency may want to attract as many outside residents as possible who are willing to pay a price which is higher than the variable cost of servicing them. The revenue accruing from this price will make a contribution to fixed costs and the service will require less subsidy from taxpayers.

In using differential prices on a time basis, lower prices are charged for services that are identical except with respect to time of use in order to encourage fuller and more balanced utilization of capacity. The intent is to encourage use of service at off-peak times and to ration use during peak times. Public utilities, computing centers, and parking lots or meters have used this approach. Varying their prices according to the time of week (weekend versus weekday) or time of day (charging higher rates for peak periods).

Quantity discounts are deductions from the regular price that reflect economies of purchasing in large quantities. Two primary types of quantity discounts are used by government agencies. The first is declining block rates which often are used in water and utility pricing. Because water delivery involves high fixed costs and low variable costs, the cost of delivering the last gallon of water is less than required to deliver the first gallon of water. Water pressure has to be kept high, leaks occur at the same rate, and administration costs remain the same irrespective of whether or not people use the water. The output of water (that is obtaining it from a source and treating it so that it is fit for human consumption) is subject to decreasing costs over the relevant market size once the plant is in place. For these reasons, as the quantity of water used by a client increases, the price per 1000 gallons decreases.
The second type of quantity discount is the season or multi-use discount pass used in many public recreation facilities such as swimming pools, golf courses, and art complexes. Their use has been challenged as being inequitable in some situations, but in others their use may be an important part of overall marketing strategy. The basic purposes of a quantity discount are (1) to stimulate additional demand, and (2) to reduce the costs of meeting that level of demand. If these two conditions are not met, then an agency should reconsider its use of quantity discounts.

Price discounts can be used as an incentive to persuade people to try a service. New clients may be offered prices lower than those paid by established clients in the hope of encouraging them to be regular users. It is important that such discounts be selective. Those receiving the discounts should recognize that they are for a limited duration or restricted to a particular set of circumstances, and that after a given time period or change of circumstances the regular price will be charged.

**CONCLUDING COMMENTS**

The systematic approach to deriving a price which has been presented here has to be tempered with a realization that there are two factors which may cause elected officials and potential client groups not always to respond positively to rational pricing decisions. First, a logically derived price may have to be adjusted to accommodate the psychological reactions of targeted client groups. Their reaction to price changes are often irrational stemming from historical perspectives, analogous experiences, self-interest, or emotion. These psychological dimensions have been addressed by one of the authors elsewhere.

A second qualifying factor is the prevailing political environment which surrounds any pricing decision. Pricing is one of the most technically difficult and politically sensitive areas in which public service managers have to make decisions. Pricing decisions are influenced by a myriad of ideological, political, economic, and professional arguments. However, the debate which accompanies this diversity of perspectives should be focused upon sound principles.

The main failure of existing user price policies is that they have been designed solely or primarily to raise revenue. The prevailing
approach is to raise all prices by some arbitrary percentage amount each year. There is little attempt to discover who is benefitting, who is paying, and the level of benefits and payments involved for each service. Even if incremental price increases are based on some acceptable criterion, they assume that the original price was appropriate. If the initial price was arbitrarily derived, then subsequent incremental increases are also likely to result in an arbitrary price.

The reasoned, rational approach discussed here will not always be immediately convincing to decision makers. However, the political and rational approaches to pricing are not mutually exclusive. The introduction of better information is not likely to lead to a diminishment of the elected official's vote—indeed, it should strengthen it. If a rational approach is not presented to elected officials, then it can only encourage continuation of irrational pricing and imply recognition of their determining those who pay and those who benefit according to whatever personal or arbitrary criteria they care to adopt.

NOTES


