Sharing Public Service Development Costs Using Average or Marginal Pricing Systems

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Who should pay how much to expand public services and facilities is one of the most difficult questions facing local government officials. The answer to this question affects every Idaho citizen whether farmer, businessman, student, senior citizen, homeowner, renter, employee or employer. Some communities answer the question by changing the rules; others are answering it by ignoring the question.

Specifically, the question is: "Should everyone in the governmental jurisdiction share the cost of new services and facilities or should the new services made necessary by new population be paid for by new population?" The technical terms for answering this question are average pricing and marginal pricing, respectively.

What is Average Pricing?

Average pricing is sharing the cost of facilities and services equally throughout the jurisdiction based on assessed valuation or service fees. It is the way most local jurisdictions have been pricing services and facilities. For property tax, the procedure goes like this: Total costs are estimated and revenues from various sources (sales tax, revenue sharing, highway funds, license fees and service charges) are subtracted from them. The remaining costs are divided by total assessed valuation to determine the mill levy charged per dollar of assessed valuation. In cases where revenues are sufficient, the mill levy would be zero. If service fees are used, the procedure involves determining the number of locations to be serviced and then dividing revenue needed by number of locations to determine charge per location.

Let's use fire protection as an example:

Average Pricing: Property Taxes

Total cost of annual operation, maintenance and debt repayment	$117,000
Total annual revenue from federal and state aids, grants and donations	9,000
Additional revenue needed	$108,000

If the county has an assessed valuation of $17,000,000, the mill levy per dollar of assessed valuation would be:

$108,000 ÷ $17,000,000 = .0064 or 6.4 mills per dollar of assessed valuation under average pricing.

Average Pricing: Service Fees

Using costs from example 1 and assuming 1,560 locations to protect, the service charge per location would be:

$108,000 ÷ 1,560 = $69.23 per location per year under an average pricing system.

Under average pricing, if the revenue is generated through property taxes the mill levy would be 6.4 mills per dollar of assessed valuation. If service fees were used to generate revenue, the charge would be $69.23 per year per location served.

Expanding Fire Protection

Expanding fire protection to meet the needs of new homes in this community could necessitate new equipment, buildings and personnel. For example, if fire station expansion and new equipment cost $186,000 with a Farmers' Home Administration-financed community loan at 5% interest rate and 20-year repayment period, the annual payment would be $14,925. Additional annual costs for operation and maintenance (4% of replacement cost) would be $7,440. Assuming the need for 5 more volunteer firemen, their training, insurance, etc., would add $381 per person or $1,905. Thus, the additional costs for expanding fire protection would be:

Equipment and station payment	$14,925
Maintenance and operation	7,440
Training, insurance, etc.	1,905
Total annual additional costs	$24,270

Average Pricing: Property Taxes

Considering new housing construction of 300 units in the jurisdiction, with each unit adding

$8,000 to assessed valuation, the total assessed valuation would be:

Previous assessed valuation	$17,000,000
New assessed valuation	2,400,000
Total assessed valuation	$19,400,000

Under an average pricing property tax system, total cost for fire protection would be $108,000 + $24,270 = $132,270. The new mill levy per dollar of assessed valuation would be:

$132,270 ÷ $19,400,000 = .0068 or 6.8 mills per each dollar of assessed valuation in the jurisdiction.

The cost of fire protection under the average pricing system has gone up .4 mill per each dollar of assessed valuation in the jurisdiction.

Average Pricing: Service Fees

Under an average pricing system, service fees would be $108,000 + $24,270 = $132,270 for serving 1,860 locations — 300 new units plus 1,560 old locations. The cost per location would be $71.11. Hence, the cost of fire protection has gone up $1.88 per location served.

What is Marginal Pricing?

In a marginal pricing system, the needed additional expenditures are charged only to the units which make them necessary. In our fire station expansion example, those houses, farms and businesses that are making the new service necessary would be charged the total capital cost of expanding the fire protection capacity.

Marginal Pricing: Property Taxes

Under a marginal pricing system for property tax, the mill levy to the new assessed valuation to cover capital improvements and new equipment would be:

$14,925 ÷ 2,400,000 = .0062 or 6.2 mills

	Avg. pricing	Marginal pricing	
Payment: Property taxes:	Old assessed valuation	Old assessed valuation	New assessed valuation
	(mills)	(mills)	(mills)
Maintenance and operation	6.4	6.0	6.0
Capital improvements	---	---	6.2
Totals	6.4	6.0	12.2

The mill levy for maintenance, operation, training, and insurance would be:

$108,000 (old maintenance, operation and debt repayment) + $7,440 (new maintenance and operation) + $1,905 (new training and insurance) = $117,345.

This divided by the *new* total assessment valuation (old and new) is:

$117,345 ÷ $19,400,000 = .006 or 6 mills.

Under this marginal pricing concept, the existing tax rate on the old assessed valuation would decrease by .4 mill. The new assessed valuation would share operation and maintenance with all assessed valuation but would totally cover new capital outlay. The mill levy for the new assessed valuation would be 12.2 mills per dollar assessed valuation.

Marginal Pricing: Service Fees

Using a marginal pricing system for service fees, each new residence would share the additional capital costs, while operation and maintenance costs would be shared by all locations receiving service. With annual capital costs of $14,925 and 300 new units, the annual capital cost per new unit would be $49.75. In addition, operation and maintenance for the total system would be $108,000 (old) + $9,345 (new) = $117,345 to service 1,860 locations. The cost per location would be $117,345 ÷ 1,860 = $63.09 — a decrease of $6.14 per service location.

	Avg. pricing	Marginal pricing	
Payment: Service charges:	Old service charge	Old location	New location
Maintenance and operation	$69.23	$63.09	$63.09
Capital improvements	---	---	49.75
Totals	$69.23	$63.09	$112.84

Under the marginal pricing concept, existing locations would have their service fee reduced since maintenance and operations costs are spread over a larger number of locations. New units would pay a higher fee because of the capital expenditure necessitated by their coming into the system.

Conclusion

The average pricing system favors the citizens demanding new facilities or additional services because costs are shared by the total tax base or total number of locations receiving service. Under a marginal pricing system for capital facilities, demand should be more closely related to the willingness to pay because those receiving the benefits or making necessary the capital investment are asked to pay the investment costs.

A growth management policy using marginal pricing will help new residents keep their demands more closely related to their willingness to pay.