
Strategic Planning and Program Budgeting for Libraries

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ABSTRACT

THIS ARTICLE WILL EXAMINE what products and services libraries offer their customers, define some of them, and show how to calculate the full cost of providing them. Program budgeting and cost-finding methodologies are outlined that will help administrators perform “strategic budgeting”—i.e., defining what services to keep, where to cut back, and what to eliminate in their own library.

INTRODUCTION

Like many other American enterprises in the 1990s, libraries are being asked to perform what sounds like a magic trick. They are to downsize, economize, and streamline, while at the same time improve quality and provide customers with services they value. And, as if these challenges are not enough, libraries are in the midst of a fundamental transformation brought about by technology. Thoughtful library directors are trying to envision what the library will look like in the next few years as technology blurs the definition of the physical library with a physical collection (ownership) to that of a virtual library with a virtual collection (access).

Managing in a time of change requires that library directors think strategically and challenge assumptions about traditional roles libraries have played in the past. Library administrators are beginning to redefine their library’s mission by asking themselves, their staff, and their clientele, What business is the library in now? What business

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LIBRARY TRENDS, Vol. 42, No. 3, Winter 1994, pp. 420-47

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should the library be in? What services should the library offer? What products should it produce?

Many library directors are facing hard choices. They have the difficult task of reallocating existing dollars in an effort to introduce new services in response to customer demands; capitalize on technological advances; continue to provide products and services which have a proven track record; and ensure that internal library operations needed to produce products and services are supported. How does the library director of the 1990s respond to these and other challenges? As one library director of a very large public library put it: "It is easy to manage when there is lots of money around. The test of a really good manager is running an effective operation when money is in short supply."

This article has two thrusts. First, it focuses on strategic planning, inviting library administrators to take a closer look at the services they offer; consider whether the services they offer support the mission of the parent institution (and therefore of their library); clarify what business(es) they are in now; and consider what businesses to enter in the future. In doing so, the answers to the following types of strategic questions begin to emerge: Should we be offering this service or producing this product at all? What is our competitive advantage?

Second, the article outlines a cost-finding methodology that enables library administrators to engage in "strategic budgeting"—that is, the decision-making that relates inputs to outputs in deciding what services to keep, what to cut back, and what to jettison within their own library. It is important not only to know what percentage of the total budget is being allocated to each product or service, but also to identify what ingredients went into each slice of the pie and what the effect would be of cutting out or cutting down on one or more ingredients. Many libraries in this country have not been able to answer these questions fully because they have been constrained by the type of information that their line-item budgets generate, which, in turn, constrains them to think in terms of line items rather than programmatically.

Armed with management information—generated by our cost-finding methodology—they can answer the following questions:

- How do we spend our resources?
- What shares of the total budget are devoted to each of our services?
- What is the composition of the resources allocated to each of the services?
- What are the costs for each unit of service delivered (assuming that output measures are available)?

- What resources could we reallocate to support an existing service or to start a new service?

If other libraries use the same cost-finding methodology, it is then possible to compare costs across libraries offering the same service. Cost comparisons serve a number of useful purposes. They provide a reality check because they help to answer strategic questions like:

- Can another library or business do it better (more effectively) and/or in a less costly way (more efficiently)?
- If this is so, how do they manage to do it?
- Can we manage our costs better, learn from other libraries, and become more competitive, or should we let others take over that service?

Reliable cost data are also essential to determine how much to compensate a particular library, or libraries, for providing a particular service or services. Our cost-finding methodology has been used both by library administrators seeking to gain a better understanding of how they spend their money and by those needing to calculate the cost of service for compensation purposes. The examples we use in this article are drawn from a study of five public libraries in Monterey County, California (Robinson, 1991b, 1991c).

While the cost-finding model provides valuable information, it does not directly answer questions relating to the "quality of service." For example, one cannot assume that, because a service costs more, it is better quality, or that if a service costs less then it is inferior. Determining quality requires evaluation of the finished goods, which is not part of the focus of this article or of this methodology.

STRATEGIC PLANNING: IDENTIFYING PRODUCTS AND SERVICES

Looking at the library from a distance, it is evident that libraries maintain a collection not only to provide information to external clients, but also to support library staff who use the collection to deliver a variety of services to customers. In addition, libraries provide a variety of other services that do not draw on the information resources that are maintained or accessed.

Collection-Related and Information-Related Services

The library provides customers with access to information and materials, either through the library's own collection or by accessing outside resources.¹ Customers go to the library to browse, to find materials, to borrow, to get questions answered, and to photocopy materials in the collection. Some of these activities customers can handle by themselves, while others, such as getting reference

assistance, depend on the librarian serving as an intermediary or information counselor (Dosa & Nusberg, 1993).

Indeed, librarians provide a very labor-intensive and highly skilled "intermediate service" which we refer to later as "collection maintenance," which encompasses the many activities they perform to maintain and expand the physical and virtual collections. In addition, librarians invest energy in developing tools to provide shortcuts for finding information, which they use on behalf of their customers, or which their customers can use directly. For example, they create union lists of periodicals, bibliographies, pathfinders on particular topics, vertical files, and the invaluable "rolodex" found on many reference desks.² Academic and school libraries place additional emphasis on teaching their clientele how to find information themselves—that is, they provide "bibliographic instruction" services.

To add value, public and school libraries provide other collection and information-related services, such as reader's advisory services, book talks, and story hours, and special libraries provide selective dissemination of information (SDI) and other types of current awareness services. Over the last decade, many libraries have gotten into the business of creating and maintaining specialized online or CD-ROM databases. Some of these databases are for internal use only, while others are commercially available. For example, the American Association of Retired Persons produces "Ageline," a database of references to the English-language literature on aging, and the Center for Banking Information at the American Banker's Association produces FINIS, a database of references to banking literature. The National Library of Medicine has invested much time and resources to develop Grateful Med, a front-end designed to make Medline, their own database, more user friendly.

Other Types of Services

Libraries provide a variety of services that do not draw on the library's information resources. Public libraries, for example, provide relatively safe, quiet, and clean "public space" which houses pay telephones, restrooms, work and relaxation space, public meeting rooms, and gallery space to exhibit items that are not part of the library's collection. In addition to attracting clientele who come to make use of the collection and information resources, public libraries attract all kinds of other clientele, such as those who need a place to go: latchkey children; teenagers seeking a social center; the homeless seeking shelter; the unemployed, who are looking for a destination but are not interested in using the collection; and providers of certain services such as literacy and English tutors.

Like public libraries, special libraries also serve as a refuge for employees of their organization. A law firm librarian in Washington, DC, reports that she provides safe harbor for the firm's lawyers who retreat regularly to carrels, with doors that lock from the inside and which have no telephones, so that they can get their work done. A librarian at a public policy think tank in the same city reserves one carrel for the exclusive use of an eminent economist, who depends on the library to safeguard his retreat from the barrage of demands that others make on his time.

Both public and academic libraries provide photocopying services. Most public libraries have coin-operated machines and many academic libraries also run photocopying services, which they subcontract to commercial concerns who locate their operations in the library. This type of photocopying may be unrelated to the use of the library's resources—that is, people use the library's equipment for personal copying. The same may apply to the use of microcomputers provided by libraries.

Other types of services include maintaining the parent organization's corporate archives and/or handling the records management function for the entire company. A number of special libraries handle the organization's switchboard and several handle the toll free information number for the organization. They may serve as a purchasing agent for materials that are not part of the library's collection, such as office collections or newspaper and magazine subscriptions for individual employees. For example, one special library in a large California bank is in charge of ordering 6,000 copies of *The Wall Street Journal* for daily distribution inside the organization.

Some libraries serve as a bookstore, both displaying and, in some cases, handling the sale of the organization's publications. Many public and academic libraries convert a space into a "second-hand" bookstore on a regular basis. They sell their own discards and those contributed by others.

Supporting the Library's Mission

The earlier discussion underscores: (1) the wide range of products and services offered by libraries; (2) the importance of determining how many businesses a library is really in; (3) whether library resources are being spent on the right businesses; and (4) whether the library's scarce resources are being allocated to the right businesses in the proper priority order. These issues can be framed as a series of questions, including the following:

- Do our current products and services maximize the use of the collection and/or access to information?

- Are collection-related services used by our clientele and/or by the library staff in providing services to clientele?
- If services provided by the library are not collection-related, do they support our mission and perform a useful function, which is valued by our clientele?
- Can we justify the amount of resources we are devoting to a specific product or service?
- Do we have a clear sense of how to prioritize our investment in our current products and services?
- And, finally, what new products and services do we want to introduce and what will they cost?

KEY SERVICES SELECTED FOR COSTING IN THE CALIFORNIA STUDY

In 1991, we did a cost analysis of the operations of five public libraries in Monterey County, California (Robinson, 1991b). As a result of discussions with staff in the study libraries, we focused on costing seven core services (or programs). These services supported their respective library's current mission, accounted for most of their respective annual library expenditures, and were provided by all of them: "reference/client referral," "interlibrary loan/photocopying for ILL," "circulation/in-house use," "collection maintenance," "public space," "in-house programs," and "library administration." In effect, these services can be thought of as separate programs. All other products and services, which did not fit into one of the seven categories, were clustered under the heading "other programs" in order to account for 100 percent of each library's activities and, therefore, 100 percent of its expenditures.

Reference/Client Referral

Reference, as we define it, includes two major services: question handling and developing specialized resources. The "all other" reference category accounts for the remainder of reference-related services. We use the term "question handling" rather than "question answering" because resources are spent in the process of handling a question whether it is answered or not. Question handling and client referral are treated as one service because the activity of handling a question may result either in a librarian referring the question to another resource (question referral) or referring the client directly to that resource (client referral).³

Question handling is also extended to reference staff in other libraries when providing interlibrary reference, and to internal ILL staff by providing "extensive" citation verification to expedite an interlibrary loan (ILL).⁴"Directional questions," unrelated to the

collection (e.g., Where are the pay phones?) and "general information questions" about the library that do not require the use of the library's collections (e.g., What are your hours?) are not part of question handling.

To support question handling, librarians engage in developing specialized resources such as bibliographies, union lists of periodicals, pathfinders, and vertical files for use by the public and engage in collection development to ensure that the library's resources will underpin question handling.

All other reference accounts for reference staff time spent on all other activities such as reader's advisory services and instructing the public in the use of reference-related equipment such as CD-ROM and microform reader/printers. Had these activities been significant consumers of reference staff time, we would have broken them out as separate services.

Interlibrary Loan/Photocopying for ILL

Interlibrary loan and photocopying for ILL are combined as one service because we view photocopying for ILL simply as a disposable ILL.

Circulation/In-House Use

Circulation/in-house use combines two services: loaning items from the collection to customers, and providing customers with the opportunity to use the materials in the library (i.e., in-house). It does not include: (1) in-house use of the collection by library staff to perform their own work, such as handling questions, developing specialized resources, or ILL; or (2) time spent on public space activities such as those described earlier.

Collection Maintenance

Collection maintenance is an intermediate input that supports other library programs, such as reference/client referral and circulation/in-house use. Just as steel is viewed by the automobile industry as an intermediate input used to manufacture cars, so is the library's collection used to deliver such services as reference, circulation/in-house use, and ILL/photocopying for ILL.⁵

We view the activities (and subsequently, the costs) relating to the maintenance and expansion of the collection as part of this one program, regardless of which department or unit in the library handles them—i.e., ordering; acquisitions (including online searching of commercial databases); processing (including binding); cataloging (including using such services as OCLC or RLIN); first-time shelving (and first-time delivery of new items to branches and other outlets in a library system); binding; deselecting, weeding, and deaccessioning;

preserving; repairing; shelf reading; and on- and off-site storage.⁶ While the libraries in the California study were not involved in conservation and preservation programs at the time, libraries engaged in either or both of these activities would include them as part of the collection maintenance service.⁷ Similarly, online and CD-ROM represented a small expenditure at the time of the two studies and were simply included in “acquisitions.”

Libraries providing extensive online services are likely to think of online searching as a separate service, the costs of which would be identified separately and then added to the total cost of collection maintenance. For libraries struggling with the access versus ownership issue, they might rename this service and call it “collection maintenance/information access services” or “physical collection maintenance/virtual collection maintenance.” Costs could be tracked separately and then summed up at year-end.

As will be described later, once the total costs of collection maintenance services are determined, then these costs can be allocated to each of the other library services that draw on the collection. In effect, the collection maintenance program will be treated as an intermediate input.

Public Space

Public space is a service that does require a physical library building—not a virtual one—because it provides and usually maintains a space that can be used for a variety of services which are not collection related, as described earlier. Staff are still required to maintain it, keep it safe and clean, and explain how to use resources other than the collection.

Library Administration

Library administration is broken out as a separate item because it, like collection maintenance, is an intermediate input that supports all library services. Library administration costs have to be allocated to the other programs to determine their full costs.

In-House Programs (Children's/Youth Services and Adult)

All the programs offered by the library to children, young adults, and adults were treated as one program.

Other Programs

Other programs is a catch-all category. It provides a way to account for all costs remaining after considering the primary services and so help reconcile the program budget totals with the line-item budget.

TYPES OF BUDGETS

Once the major programs that define the mission of the library are identified, the next step is to develop the companion piece, a

program budget, which provides cost and expenditure information on each program. A program budget is the vehicle for combining all the inputs that go into a particular product or service. It provides managers with the information they need to establish opportunity costs; that is, make trade-offs between and among programs. This kind of information cannot be produced by a line-item budget, which is the basic tool for cost accounting in libraries and is largely a tool for accountants rather than managers.

Line-Item Budget

A line-item budget arrays costs by type of input, usually identified by accounting object codes. Some libraries use more than a hundred different object codes in their line-item budgets, which is small potatoes compared to many organizations (e.g., the U.S. government). Accounting departments and comptrollers depend on line-item budgets to ensure that departments stay within their projected expenditures for various types of goods and services, and ensure that they leave a documented audit trail. Most accounting systems easily generate reports showing how much money is left in each line to date, how expenditure data compare to projections for the year-to-date, or how expenditures in previous years compare to this year's. A library's line-item budget, however, rarely reflects all its costs. Others, including the parent organization, volunteers, and donors, support the library through "in-kind" contributions, which do not appear in the library's line-item budget because they are not charged to the library.

Program Budget

In contrast, a program budget categorizes expenses by program, or output, rather than (or in addition to) by type of good purchased or input. A program can be defined as an activity, service, or product. The term "program" is used interchangeably with the terms "cost center" and "service" in this article.⁸ Because it is a management tool, and supplements rather than replaces the line-item budget, the program budget should show all the costs associated with a particular service, whether they are charged to the library or not and whether or not they appear in the library's line-item budget.

Each program in the program budget appears separately. The line-item costs for each program appear together and can be summed. With summary expenditure information available for each program, it is possible to begin to compare the total cost of each program and to analyze the types of costs and amount of expenditures incurred for each program.

Expenditure versus Revenue Budget

The library's previous year's line-item "expenditure" budget provides the starting point for determining the cost of each program.

It is usually more reliable to work with last year's actual expenditures after the books have closed (and add a cost of living allowance, if necessary). Estimated costs, drawn from this year's projected revenue budget are less reliable, unless this year's projections and last year's expenditures are very similar because little change is expected and no unusual capital costs are included.

TYPES OF COSTS

In developing a program budget, a number of costs must be accounted for and incorporated into the library's operating budget. They are: operating and capital costs; variable and fixed costs; and direct and indirect costs.⁹ If units of outputs are available for each of the cost centers, then average and marginal costs can be calculated. Each is defined below.

Operating versus Capital Costs

Operating costs are the organization's recurring annual expenditures. Capital costs, on the other hand, are one-time expenditures for capital goods (such as new construction, major renovations, and equipment) which provide services for an extended period of time. These capital costs are not included in an organization's annual operating budget but instead are treated separately in a capital budget. The value of the annual flow of services provided by capital goods, however, is (or should be) included in the library's operating budget. The problem is how to value this flow.

The standard approach is to estimate a depreciation charge, which measures how much of the capital goods are used up in a given year, and include this charge in the operating budget. This approach is appropriate for capital goods such as buildings and equipment, whose replacement value and economic lifetime can be readily estimated. The library's collection, which we view as a capital good, poses some challenges when considering how to capture the flow of services it provides in the library's operating budget. We discuss ways of addressing this issue later.

Fixed Versus Variable Costs

Fixed costs include things such as rent and utilities that are independent of the amount of service provided in a given year. In this article, the cost of maintaining the collection is also treated as a fixed cost. Variable costs are those costs which vary directly with the amount of service provided or the number of products produced. Variable costs include the cost of inputs such as labor, raw materials, and energy used to produce a product or service. Ultimately, over time, all costs are variable.

Direct Versus Indirect Costs

Direct costs are those labor and material costs which can be directly assigned to a program or service, whether fixed or variable. Indirect costs are those which cannot be easily associated with a particular product, such as insurance, taxes, rent, utilities, and management.

Average Versus Marginal Costs

Average unit cost equals the total cost—variable plus fixed—divided by the total volume of service provided. The marginal unit cost of a given service or program is the incremental cost of providing an additional unit of the service. Marginal costs include only variable costs. For example, the major variable cost in delivering reference service is reference staff time. We use two notions of marginal cost: MC1, which includes only the costs of paid labor; and MC2, which includes all labor costs plus the costs of associated materials and administration. MC1 is a short-run measure assuming no change in costs associated with labor. MC2 is a longer-run notion including administration and materials costs required to support the labor input but not including fixed costs such as space.

CREATING AN ENHANCED OPERATING BUDGET

To gain a complete understanding of how a library's resources are being used, it is important to identify *all* the costs (i.e., inputs) that are required to deliver each service. We refer to the activity of identifying costs that do not appear in the line-item budget as "enhancing" the library's operating budget. An enhanced library budget shows the full cost of delivering products and services.

Enhancing the library's budget involves tracking down costs that are not included in the library's formal accounting system. It is important, however, to be able to keep these additional costs separately identifiable so that the program budget can be reconciled with the library's original line-item budget. Two types of costs that are often omitted in standard library accounting systems are "in-kind" contributions and the annual flow of capital services from equipment, physical space, and the collection.

In-Kind Contributions

There are two types of in-kind contributions: (1) "actual" costs that have been paid for by others on behalf of the library and therefore have a known cost; and (2) goods and services that have been provided by others but have not been purchased, and therefore must have their cost estimated or "imputed" because they do not have a known cost. For example, even if the cost of housing the library (e.g., physical space in a building owned by the parent organization, as well as

heat, light, maintenance, landscaping, and off-site storage) is not charged, in part or in full, to the library, these costs represent an "actual" in-kind contribution to the library from the parent organization. If the parent organization paid for these services in full or in part, then none (or perhaps only a portion) of the costs will appear in the library's budget. These costs will usually appear in the budget of the parent organization as an "indirect" cost (e.g., overhead).

The library may also receive material contributions from such groups as the friends of the library (e.g., library materials and shelving or cash donations to underwrite library programs). These types of expenditures may also not appear in a library's budget because they are not incurred by the library. Nonetheless, they too represent "actual" costs of inputs used to produce particular library services and should be included in the enhanced line-item budget.

The second type of in-kind contribution is that for which a cost must be imputed because no payment was made, directly or indirectly, such as the cost of volunteers' time or the cost of space loaned by outside groups for library events. In these examples, the contributions support library programs and should be seen as part of the cost of producing particular services.¹⁰ Consequently, it is necessary to assign a monetary value to each of these in-kind contributions by imputing their cost and to include them in the enhanced budget.

Annual Flow of Capital Services

There is a second type of cost, which should appear in the library's annual operating budget along with the annual maintenance cost figures—the annual flow of services provided by the library's fixed assets (i.e., capital costs). Capital costs are usually extraordinary costs, which are not made yearly, such as the purchase of such fixed assets as property, physical plant, and equipment.¹¹ When the accounting is done correctly, a library's capital costs should appear in a separate capital budget. If capital costs appear in the operating budget, they distort the cost picture. The flow of services provided by the library's fixed assets, however, should appear in the library's operating budget as an annual flow of services provided by the capital good.

One way to establish the annual cost of capital services is to determine the initial cost of the capital good and how long it is expected to last. By dividing its cost by the number of years it is expected to last (i.e., its life), an annual depreciation cost can be determined and shown in an operating budget. This cost is called "depreciation" because it sums up the annual reduction in value of the capital good—the amount used up.

Standard accounting practice bases the annual depreciation charge on the purchase price of a capital good. For cost accounting, however, depreciation charges should be based on replacement cost. In this approach, the idea is to set aside a depreciation charge annually that is sufficient to buy an equivalent capital good when the existing one wears out. The replacement cost may increase (e.g., imported Swedish furniture) or decrease (e.g., personal computers) over time. Consequently, for cost accounting, good accounting practice involves not only maintaining an inventory of fixed assets, such as equipment, but also revising the cost of replacing each item in order to "amortize" the replacement cost properly. Unfortunately, many organizations do not update their fixed asset inventories in this way, and, therefore, they cannot adjust the annual cost of capital goods in their operating budgets.

Flow of Capital Services from Equipment and Physical Plant

"Equipment" refers to durable goods, including office machinery, computers, and furniture, which provide services for more than a year and so are treated as fixed assets. In making comparisons among libraries, however, it is important to define capital costs carefully, since accounting practice may vary from institution to institution and library to library. For example, in the California study, three jurisdictions defined items costing more than \$1,000 as fixed assets; a fourth jurisdiction set the threshold at \$1,500; and the fifth set it at \$100.¹²

Just as equipment provides annual services to the library, so does the physical plant provide "space-related services." While we often tend to take space for granted, or simply account for the associated maintenance costs, consider the trend to lease or sell school buildings for alternative uses. In each of those transactions, someone looked at the opportunity cost issues and decided that the cost of providing housing services to maintain a school was not as advantageous as cashing in on the physical space. The same is also true for the purchase of companies, not for their outputs or even their ability to produce outputs, but rather simply because their buildings and real estate are valuable and can be used for other purposes.

Knowing the value of the physical space consumed by a library is a useful exercise in consciousness raising.¹³ For example, it tends to make one appreciate a parent organization which absorbs the cost of housing the library (i.e., provides it as an in-kind contribution). It also makes one more sensitive to the importance of using the space as efficiently as possible, given its high cost. In the California study, the capital services provided by the physical plant were not originally

included in any of the libraries' line-item budgets. These costs had to be estimated for each of the libraries to ensure that their enhanced operating budgets were comparable.

In the California study, three different approaches were used to calculate the cost of these space-related services. In the case of one library system that rented a number of buildings in which it housed its branches, we simply included in their operating budget the annual rent they paid. For buildings that were provided as an in-kind contribution by two libraries' respective jurisdictions, we imputed a rent based on commercial rates in the area. And for the newly built library wing in one jurisdiction, we used a depreciated rate based on the value of the building at its current replacement cost (not its original construction cost) amortized over a standard thirty-year period.

Flow of Capital Services from the Collection

The library collection can be viewed as another type of capital good, one which yields "collection services." A library's collection represents a major part of its capital stock. If the collection is treated as a capital good, then the annual flow of collection services needs to be given a dollar value and included in the enhanced budget.

As we said earlier, treating the collection as a capital good raises the problem of how to calculate the cost of the annual flow of services it provides. If we try to follow standard accounting practice and value the collection by calculating an annual depreciation cost to be amortized over its useful life, we run into some difficulties. For starters, how can we determine what the cost of those collection services are when we have no easy way to calculate the cost of the collection, particularly if we want to base the cost estimate on the replacement cost of the collection rather than on the original purchase price of the materials in the collection? If entire library collections were bought and sold, we might be able to use the sale price of a collection comparable to the one we want to value, but only special collections are sold and then very rarely. Even assuming we could value the collection, how do we calculate its life? A library collection, unlike a piece of equipment or a building, has no easily defined life. While some materials wear out or are discarded, others are preserved indefinitely.

An alternative approach is to go back to first principles. The fundamental question is how to cost the annual flow of services provided by a particular capital good—a library collection. Instead of viewing the collection as a capital good that wears out or depreciates, we can instead treat it as something that survives indefinitely, sustained by "replacement investment" whose cost

measures the annual flow of services it provides. In this approach, the library collection is treated as immortal, with materials constantly being discarded, acquired, and preserved. The collection is supported by replacement investment which maintains its status indefinitely.

Our approach is to estimate the cost of replacement investment for the collection by making the following assumption: the collection maintenance cost center sustains the collection and so provides collection services to the library in a given year and also maintains the ability of the collection to deliver the same level of services in future years. Given this assumption, the budget of the collection maintenance cost center, which includes the acquisitions budget, measures the replacement investment required to maintain the level of collection services provided by the library collection.

In this approach, we are assuming that the overall size of the collection is not changing significantly. If the collection size expanded significantly over a period of time, then the acquisitions budget, which is part of the collection maintenance cost center, is providing more than just replacement for worn out or discarded materials. If this were the case, we would have to estimate how much of the acquisitions budget represents investment for expansion of the collection, and move those expenditures into the library's capital budget. If, on the other hand, the collection is shrinking, then we have to estimate the amount by which the acquisitions budget falls short of maintaining the size of the collection. In the case of the libraries we examined in California, the size of their collections and acquisitions' budget did not change during the period of the study.

CREATING A PROGRAM BUDGET

There are three steps required to move from a line-item budget to a program budget: (1) define the programs and services to be costed and create a cost center budget for each program in the overall program budget where all the costs related to that program appear together; (2) determine the full cost of operating the library by enhancing the library's line-item budget; and (3) create a program budget by allocating each category of cost that appears in the library's enhanced line-item budget to one or more of the program cost centers. Decisions and tasks required to accomplish steps one and two were discussed earlier.

Table 1 shows the total costs for each of the five California public libraries as they appear both in their original, as well as in their enhanced, line-item budgets. The more costs that appeared in the original line-item budget, the less difference our enhancement procedure makes. The difference between the original and enhanced budgets for each library ranged from 8.7 to 29.0 percent. This wide

TABLE 1
TOTAL EXPENDITURES, LINE-ITEM AND ENHANCED BUDGETS, \$1,000s FY 1990

<i>Library</i>	<i>Line-item budget</i>	<i>Enhanced budget</i>	<i>Percentage difference</i>
CPL	\$ 779	\$ 991	27.2
MCFL	2,678	2,911	8.7
MPL	1,305	1,684	29.0
PGPL	481	618	28.3
SPL	2,011	2,504	24.5

Notes:

CPL: Carmel Public Library

MCFL: Monterey County Free Libraries

MPL: Monterey Public Library

PGPL: Pacific Grove Public Library

SPL: Salinas Public Library

Line-item and enhanced budgets refers to the operating budget and exclude capital outlays.

Sources:

Line-item expenditure data provided by the libraries.

Enhanced budget data created as part of the study.

variation is largely attributable to different accounting practices regarding the cost of space in the different libraries. The magnitudes of the omitted costs and the differences across libraries illustrates the need to create enhanced budgets in order to make valid cost comparisons among libraries or to comprehend what it really costs to provide library services.

In moving from step two to step three, we have to allocate all costs to each of the cost centers. There are three principles for making the allocations, depending on the nature of the enhanced line-item costs to be allocated. First, whatever costs are directly associated with a particular program can be immediately allocated to the corresponding cost center. Second, remaining costs associated with labor are allocated according to each program's use of labor and labor-related inputs—the labor-use allocation principle. Finally, remaining costs associated with the use of space are allocated according to each program's use of space—the space-use allocation principle.

In working with an enhanced operating budget, it is helpful to rearrange the usual line-item expenditure categories into groups that reflect the three allocation principles. Table 2 presents summary line-item budget data for the five libraries. The three broad categories of costs that correspond to the allocation principles appear in the table as: directly allocable to specific cost centers, labor-related, and space-related.

TABLE 2
PERCENTAGE COMPOSITION OF ENHANCED LINE-ITEM BUDGETS

Shares by budget category	Library:				
	CPL*	MCFL**	MPL***	PGPL†	SPL††
<i>Directly allocable to cost centers</i>					
Acquisitions	8.3	11.7	9.6	10.4	12.0
Other collection-related	5.9	1.6	5.1	1.8	3.9
Subtotal, collection maintenance	14.2	13.3	14.7	12.2	15.9
Other specific cost centers	2.7	4.6	1.8	0.4	2.6
Subtotal, directly allocable	16.9	17.9	16.5	12.6	18.5
<i>Labor-related</i>					
Paid labor	54.8	54.8	59.3	51.9	59.6
In-kind labor	1.9	5.2	1.0		3.0
Local government administration	6.3	7.2	7.8	0.6	5.7
Depreciation, equipment	0.7	0.6	0.1	3.2	1.9
Other labor-related	3.0	2.7	4.1	3.9	1.2
Subtotal, labor-related	66.7	70.5	72.3	68.0	71.4
<i>Space-related</i>					
Depreciation, buildings	5.0	1.6	6.3	9.7	3.7
Depreciation, other	3.3	0.0	1.4	3.3	2.3
In-kind city contribution	7.8	6.0	0.0	2.5	1.8
Other space-related	0.3	4.0	3.5	4.1	2.3
Subtotal, space-related	16.4	11.6	11.2	19.6	10.1
Total	100.0%	100.0%	100.0%	100.0%	100.0%
*CPL: Carmel Public Library					
**MCFL: Monterey County Free Libraries					
***MPL: Monterey Public Library					
†PGPL: Pacific Grove Public Library					
††SPL: Salinas Public Library					

Costs clustered under "directly allocable to specific cost centers" are those that can be directly related either to the collection maintenance cost center or to any of the other cost centers described earlier. Labor-related costs accounted for all remaining labor costs, which were not directly allocable to specific cost centers including: paid labor (loaded with benefits); the imputed cost of in-kind labor; the cost of city or county administration; any other costs which supported labor, such as depreciation on labor-related equipment; and other labor-related costs, such as staff travel, professional memberships, and the use of temporary agencies. Clustered under space-related costs are depreciation of the buildings (however estimated); depreciation of other building-related equipment, such as attached shelving; in-kind city or county contributions, such as janitorial services and security guards; and other building-related costs, such as maintenance and utilities.

The share of total costs directly allocated to specific cost centers in the California study is relatively small, ranging from 12 to 18 percent. The largest share of costs is labor related, which is typical of labor-intensive organizations such as libraries. These costs are similar across the libraries, accounting for 67 to 72 percent of total costs. Finally, space-related costs account for 10 to 20 percent of total costs.

As is evident, the costs of labor and of operating the physical plant are large. To allocate these costs to cost centers, we developed several instruments with which to collect data that make it possible to associate these costs with each of the defined programs. The instruments include: (1) a survey of staff time allocated to each program; (2) a salary survey, which generated data on loaded labor costs for both paid and in-kind labor to translate staff time into dollars; and (3) a space survey for estimating the amount of usable interior square footage devoted to each cost center. These data are used to calculate shares for distributing labor-related and space-related costs according to the allocation principles discussed earlier.

Table 3 shows each library's enhanced budget, with all line-item costs allocated to eight cost centers. Not surprisingly, the cost center with the largest percent share of total library expenditures is collection maintenance, ranging from 34.3 to 45.0 percent of total cost for each library. The share of circulation/in-house use ranged from 19.2 to 23.4 percent, followed by reference and library administration, both of which vary widely as a percentage share of each library's budget (i.e., reference represented between 9.8 and 16.3 percent, and library administration 9.6 to 14.4 percent). There was also considerable variation in the amount of the total expenditures devoted to ILL/photocopying for ILL, ranging from 1.9 to 6.5 percent. Shares of resources devoted to in-house programs range from 3.1 to 5.2 percent of each library's total enhanced budget, and the use of each library's resource for public space (i.e., noncollection-related services) was small, ranging from 1.2 to 3.2 percent. The catch-all category, other programs, accounts for 2 percent or less of total expenditures for three of the libraries, but between 7.0 and 8.3 percent for the county library and the Salinas public library because each runs a number of special programs, such as the California literacy campaign and a special annual event celebrating John Steinbeck.

The final step in creating a program budget is to allocate the costs of the two programs which produce intermediate inputs—library administration and collection maintenance—to the other programs. Library administration costs are allocated to each cost center according to the percentage shares of "direct labor," on the basis that

TABLE 3
 PERCENTAGE COMPOSITION OF ENHANCED LIBRARY BUDGETS BY COST CENTER

Shares by cost centers	Library:				
	CPL*	MCFL**	MPL***	PGPL†	SPL††
Reference	12.8	14.7	15.9	9.8	16.3
ILL/photocopy	3.5	6.5	2.6	5.1	1.9
Circulation/in-house use	22.5	22.4	19.2	21.7	23.4
Collection maintenance	38.9	34.3	41.6	45.0	35.0
In-house programs	4.7	3.1	5.2	3.9	5.2
Public space	1.2	1.7	2.1	3.2	2.3
Other	2.0	7.0	1.7	1.7	8.3
Administration	14.4	10.3	11.8	9.6	7.6
Total	100.0%	100.0%	100.0%	100.0%	100.0%

*CPL: Carmel Public Library
 **MCFL: Monterey County Free Libraries
 ***MPL: Monterey Public Library
 †PGPL: Pacific Grove Public Library
 ††SPL: Salinas Public Library

administration is inseparable from staff.¹⁴ Collection maintenance represents a more difficult allocation problem.

In order to allocate collection maintenance costs, we developed measures of collection use by the different cost centers. We started by defining a unit of collection use, which we call a "circulation equivalent" (or CE). A CE is equal to a single item circulated. In consultation with staff at the five libraries, we estimated each cost center's use of the collection expressed in terms of CEs. The approach we used to allocate collection use by each of the four cost centers is described later.

Reference/client referral. As described earlier, reference includes question handling and developing specialized resources, both of which draw on the collection and all other reference-related activities (which pertain primarily to staff training and oversight and do not draw on the collection). In the case of question handling (QH), we knew the number of questions each library handled and assumed that each reference question required, on average, two uses of the collection, or two CEs per question. The total number of circulation equivalents for question handling for the year equals two times the total number of reference questions handled. While some of the study participants believed that reference librarians use the collection more frequently, on average, when handling questions, we took a conservative approach.¹⁵

Because we do not have direct measures of collection use for developing specialized resources (DSR), we took an indirect approach

to determine the total number of circulation equivalents used for DSR. We assumed that the time spent on DSR involves the use of the collection to the same extent as time spent handling questions. Therefore, the total number of CEs used in developing specialized resources is calculated by multiplying the number of CEs used for question handling by the ratio of the time spent developing specialized resources to the time spent question handling. Where "dsr" is "developing specialized resources" and "qh" is "question handling," the formula is:

$$CE(dsr) = \frac{TIME(dsr)}{TIME(qh)} \bullet CE(qh)$$

Circulation/In-House Use. Each circulation, by definition, represents a single circulation equivalent. No indirect measures are required because we had annual circulation data reported by each of the five libraries. In measuring in-house use, however, we did not have direct measures of collection use by visitors. After consultation with staff and reviewing data on in-house use in the library literature, we assumed 0.5 circulation equivalents per attendee for the year. This assumption implies that every other person picked up an item, looked at it, but did not check it out.

ILL/Photocopying for ILL. We assumed one circulation equivalent per outgoing ILL item (whether it was the physical item or a photocopy). The libraries report data on ILL/photocopying annually.

In-House Programs (Children's/Youth Services and Adult). For children's/youth services programs, we assumed 0.5 circulation equivalents per attendee for the year (which is comparable to the in-house use assumption) plus five circulation equivalents per program to reflect staff use of the collection in preparing the program. We assumed that every other attendee consulted an item before, during, or after the program but did not check it out. Because the two are mutually exclusive, the use of collection materials for children's/youth services is not included in the overall in-house count. For adult programs, we assumed 0.25 circulation equivalents per attendee for the year (half the in-house use that accompanies attendees browsing materials before and after a particular program) plus five CEs per program to reflect staff use of the collection (making the same assumption as we did with children's/youth services and adult).

We used this information on collection use by different cost centers to estimate their shares of total collection use. We then used these shares to allocate the costs of collection maintenance across

the other six programs. After completing this step, we have a fully allocated enhanced program budget.

Table 4 reports the shares in each library's program budget for the six programs delivering services to external clientele. Comparing figures in Table 4 with those in Table 3 underscores the impact that allocating the costs of the two cost centers providing intermediate inputs (library administration and collection maintenance) has on the shares of the total program budget for each of the other six cost centers. The share of circulation/in-house use in total costs increased dramatically (by 30.4 to 46.8 percentage points) indicating the importance of the collection to this program. Given its use of the collection, circulation/in-house use is the largest program, consuming from 53.6 to 67.5 percent of total library resources. Reference represents the second largest share of the fully allocated program budget, ranging from 16.0 to 26.8 percent. It too is a major user of collection services, as indicated by the increases in its share of total costs after allocating library administration and collection maintenance.

TABLE 4
PERCENTAGE OF COSTS IN ALLOCATED PROGRAM BUDGETS

<i>Program Cost Center</i>	<i>CPL*</i>	<i>MCFL**</i>	<i>Library MPL***</i>	<i>PGPL†</i>	<i>SPL††</i>
Reference	23.3	23.9	26.8	16.0	26.5
ILL/photocopy	4.5	8.1	3.1	5.9	2.2
Circulation/in-house use	62.0	54.4	59.8	67.5	53.8
In-house programs	6.2	3.7	6.0	5.1	6.0
Public space	1.6	1.9	2.3	3.6	2.6
Other programs	2.4	8.0	2.0	1.9	9.0
Total	100.0%	100.0%	100.0%	100.0%	100.0%

*CPL: Carmel Public Library

**MCFL: Monterey County Free Libraries

***MPL: Monterey Public Library

†PGPL: Pacific Grove Public Library

††SPL: Salinas Public Library

OUTPUTS AND UNIT COSTS

To take the analysis a step further and move from a program budget to an examination of unit costs, we require output measures for the different programs. Table 5 shows output measures and the unit cost of services provided by four of the six cost centers: circulation/in-house use; reference; ILL/photocopying for ILL; and in-house programs (children's/youth services and adult). We assembled data on outputs for each of these cost centers: the number

TABLE 5
PROGRAM OUTPUTS AND UNIT COSTS

	<i>CPL</i>	<i>MCFL</i>	<i>MPL</i>	<i>PGPL</i>	<i>SPL</i>	<i>Average</i>
Output measures						
Circulation	136,636	803,633	535,614	178,322	828,649	496,571
No. reference questions	18,404	107,329	67,185	15,793	116,577	65,058
ILL transactions	1,691	20,416	1,873	1,399	2,132	5,502
Attendees, in-house programs	4,047	8,721	8,138	6,075	11,786	7,753
Percent shares						
Circulation	5.5	32.4	21.6	7.2	33.4	100.0
No. reference questions	9.3	25.0	22.8	16.3	26.5	100.0
ILL transactions	6.1	74.2	6.8	5.1	7.7	100.0
Attendees, in-house programs	10.4	22.5	21.0	15.7	30.4	100.0
Cost per item circulated						
Paid labor (MC1)	\$ 1.07	\$0.44	\$0.48	\$0.51	\$0.44	\$0.49
All labor, materials, and administration (MC2)	\$ 1.79	\$0.79	\$0.69	\$0.77	\$0.59	\$0.76
Total, includes collection and space (ATC)	\$ 4.49	\$1.97	\$1.88	\$2.34	\$1.63	\$2.00
Cost per question handled						
Paid labor (MC1)	\$ 2.87	\$1.34	\$1.66	\$2.59	\$1.61	\$1.83
All labor, materials, and administration (MC2)	\$ 8.07	\$4.41	\$4.44	\$4.19	\$3.39	\$4.45
Total, includes collection and space (ATC)	\$12.56	\$6.49	\$6.70	\$6.25	\$5.63	\$6.84
Cost per ILL transaction						
Paid labor (MC1)	\$16.84	\$7.34	\$19.12	\$16.92	\$15.63	\$9.85
All labor, materials, and administration (MC2)	\$25.25	\$10.22	\$27.38	\$25.50	\$24.52	\$14.20
Total, includes collection and space (ATC)	\$26.36	\$11.50	\$28.06	\$26.13	\$25.41	\$15.37
Cost per attendee, in-house programs						
Paid labor (MC1)	\$7.42	\$7.66	\$5.62	\$2.76	\$9.33	\$6.95
All labor, materials, and administration (MC2)	\$12.61	\$11.15	\$11.68	\$4.51	\$12.02	\$10.64
Total, includes collection and space (ATC)	\$15.24	\$12.50	\$12.50	\$5.22	\$12.77	\$11.73

Notes: The ILL transactions for MCFL include interbranch (or intralibrary) loans. ILL loans to other libraries were 709 while intrabranch loans were 16,662. ILL borrowing from other libraries by MCFL was 3,045, for a total of ILL transactions of 20,416. "MC" refers to "marginal cost." "ATC" refers to "average total cost." Both concepts are discussed in the text.

Source: Output measures come from *California Public Library Report, 1990*. Supplemental data on attendees for adult and children's programs provided by libraries.

of items circulated; the number of reference questions handled; the number of ILL transactions (including the number of items photocopied for ILL); and the number of attendees for all in-house programs (which were estimated by each library).

Table 5 also provides comparative data on outputs across the five libraries and shows their "market shares" for the provision of these services in Monterey County. For example, Salinas Public Library (SPL) handled the most circulation (33.4 percent), the greatest number of reference transactions (26.5 percent), and had the most attendees for in-house programs (30.4 percent). Monterey County Free Libraries (MCFL), on the other hand, was responsible for nearly three-quarters of ILL transactions (74.2 percent).

To provide library administrators with a range of cost information for each of the four programs, we used three different approaches to measuring the cost per unit of output. They are: marginal cost 1 (MC1); marginal cost 2 (MC2); and the average total cost (ATC). MC1 shows how much more it costs in terms only of paid labor (loaded with benefits) to provide one more unit of output for each of the services. MC2 shows the cost of one more unit of output when all labor-related costs are included (i.e., paid labor plus in-kind labor, depreciation on equipment used by labor, materials and supplies, and library administration, plus all the costs that are directly allocated to a specific cost center at the start of the allocation process). The average total cost shows how much it costs each library to produce one more unit of output when all costs, variable and fixed, are included (i.e., MC2 plus collection maintenance and space costs). Figures 1 to 4 present the cost data from Table 5 in stacked bar charts and also provide more detail on the breakdown of total cost by type of input.

The MC1 cost per question handled averages \$1.83 across the five libraries, ranging from \$1.34 to \$2.87. The MC2 costs per question handled cluster at between \$4.00 to \$4.50 for three of the libraries (Monterey County Free Libraries [MCFL], Monterey Public Library [MPL], Pacific Grove Public Library [PGPL]), with SPL providing the service at the lowest cost (\$3.39) and CPL at the highest cost (\$8.07). The MC2 average cost across the five libraries is \$4.45. When the average total cost (ATC) of handling a reference question is calculated, the average across the five libraries is \$6.84, and the ATC per question handled rose by roughly \$2.00 for all but Carmel Public Library, whose ATC increases by more than \$4 per question handled to \$12.56. From Figure 1, it appears that CPL has higher costs per question handled in every cost category.

The average cost of circulation across libraries at the MC1 rate is \$.49 per item circulated. MC1 costs cluster at between \$.44 to \$.51 for four libraries, while Carmel Public Library's MC1 costs are roughly double (\$1.07). When the MC2 costs are arrayed, the average cost across libraries is \$.76, ranging from \$1.79 for CPL, followed by \$.79 for Monterey County Free Libraries, and the least expensive

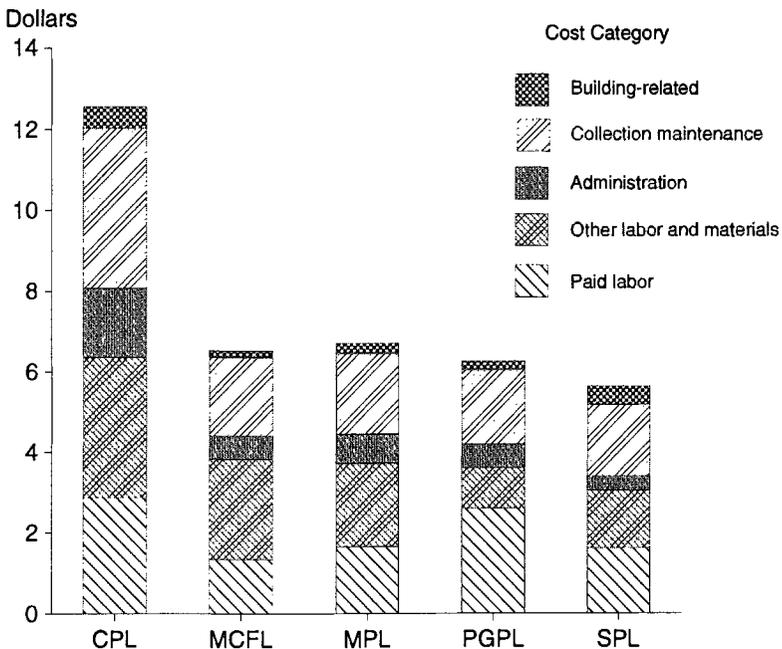


Figure 1. Unit cost of question handling

at \$.59 for Salinas Public Library. When the ATC across libraries is calculated per item circulated (\$2.00), CPL's cost of \$4.49 is more than double that of the other four libraries. From Figure 2, it is evident that there is much more variation in the collection maintenance costs for circulation than in the other cost categories, with CPL having a very high collection maintenance cost per unit of circulation.

It is apparent that ILL is an expensive transaction. The MC1 cost of ILL at Monterey County Free Libraries is \$7.34 compared to a range of \$15.63 to \$19.12 for the four other libraries. The average MC1 ILL cost across the five libraries is \$9.85. The MC2 cost per ILL ranges from \$24.52 (Salinas Public Library) to \$27.38 (Monterey Public Library), compared to \$10.22 for MCFL. The average MC2 cost across the five libraries is \$14.20. The average total costs for four of the libraries ranges from \$25 to \$28, compared to \$11.50 for MCFL, and an average across libraries of \$15.37. Labor costs represent by far the largest part of ILL costs (see Figure 3). MCFL's cost per ILL handled is by far the lowest. The lower costs at MCFL may be attributable to their high volume of ILL, including interbranch loans, which may yield significant economies of scale.

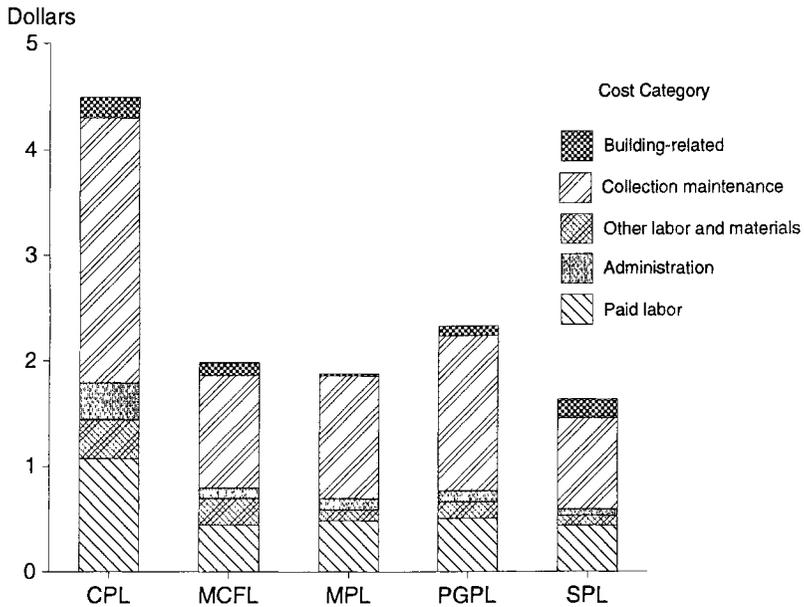


Figure 2. Unit cost of circulation

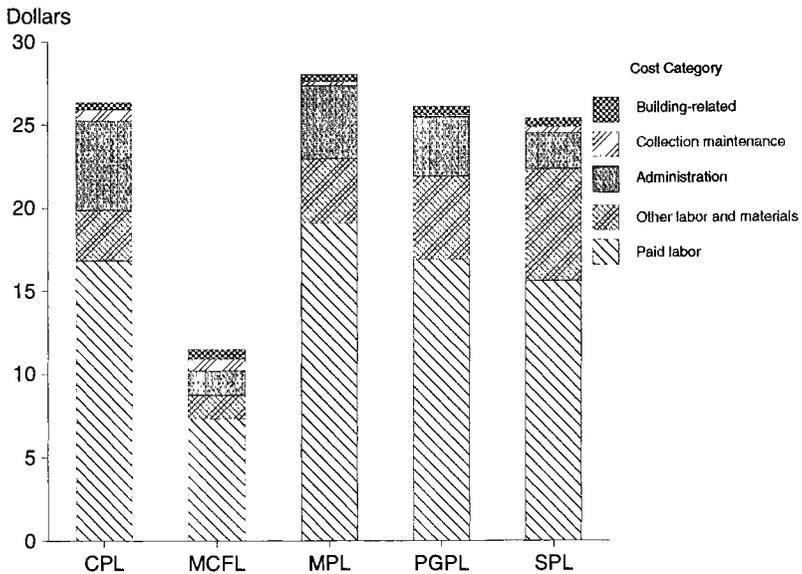


Figure 3. Unit cost of interlibrary loans

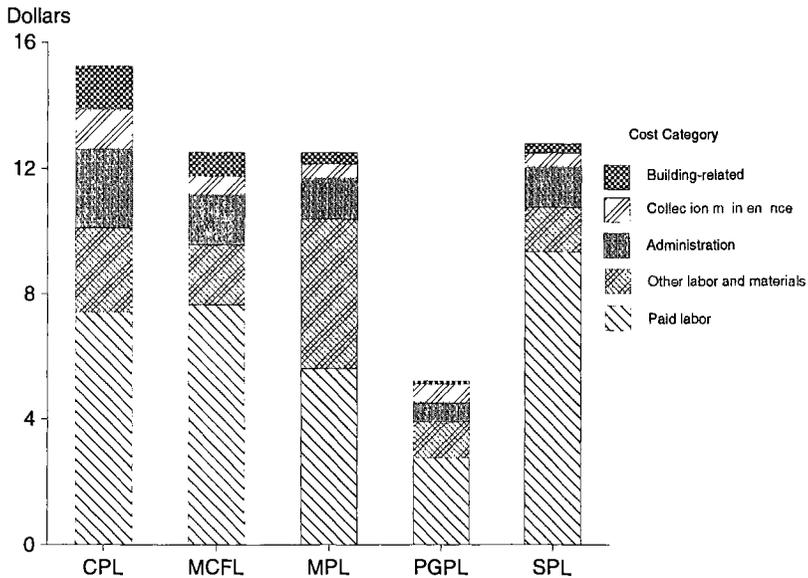


Figure 4. Unit cost of in-house programs (per attendee)

The MC1 cost per attendee at "in-house programs" ranges from a low of \$2.76 at Pacific Grove Public Library to a high of \$9.33 at Salinas Public Library, with the MC1 average cost across libraries at the rate of \$6.95. The MC2 cost for Carmel Public Library, Monterey County Free Library, Monterey Public Library, and Salinas Public Library are all in the \$11 to \$13 range, while PGPL's MC2 cost is less than half that of the other libraries (\$4.51). The ATC across libraries is \$11.73, with PGPL the lowest at an ATC of \$5.22 and CPL the highest at an ATC of \$15.24 per attendee.

CONCLUSION

Over the last decade, many libraries have invested time in tracking the use their patrons make of library service because they see that output measures provide valuable information about library performance. In this article, we have argued that it is time to go further and face the tasks of: (1) re-examining what products and services the library is really offering the customer; and (2) identifying in greater detail the resources (inputs) that go into the delivery of each of these products and services. Our cost-finding methodology has been used both by library administrators seeking to gain a better understanding of how they spend their money and by those needing

to calculate the cost of service for compensation purposes. Our goal has been to convince library administrators that they need more detailed information on how much it is costing them to provide current services. The methodology of cost finding and program budgeting provides library managers with the tools they need to move beyond the accountant's line-item budget and generate management information necessary for strategic planning in a time of diminishing resources and rapid changes in technology.

NOTES

- ¹ An expanding number of academic libraries are investing staff time in working with campus computer centers to provide remote access for their faculty and students to both the physical resources housed in the library and the library's "virtual" collection of resources in whatever format they are needed and wherever they are located (the concept of the scholar's workstation).
- ² Each of these resources could be viewed either as a separate service and costed separately, or they could be viewed as one service (e.g., developing bibliographic aids or finding tools) and the individual costs could be summed.
- ³ For libraries interested in performing a cost/benefit analysis of doing the work themselves versus handing the work over to the client, costs could be tracked separately if separate statistics were collected for the two types of referral.
- ⁴ We defined "minimal" citation verification as consulting up to three sources and treated it as an ILL function.
- ⁵ It is also possible to view the collection as an archive—final product. In the case of the librarians in the two studies, however, none of them viewed the collection as an end in itself. Had the libraries we studied owned extensive special collections or archives that they were committed to maintaining regardless of whether they were used, it would have been appropriate to separate the two aspects of this program.
- ⁶ The costs of these activities are usually widely scattered throughout a library's line-item budget, and handled by a number of departments (e.g., collection development; acquisitions; technical services; circulation). In our costing methodology, we bring all these costs together.
- ⁷ Indeed, for some academic libraries and for very large libraries, like the Library of Congress, preservation is such a big ticket annual cost that it is appropriate to track it separately before adding it to the cost of maintaining the total collection.
- ⁸ If a program budget is being developed for a service which is designed to generate a profit, such as online fee for service, then the service is often described as a "profit center" rather than as a "cost center."
- ⁹ The discussion of cost concepts in this section draws on Robinson, 1989, 1991a.
- ¹⁰ In the volunteer programs sponsored by private industry, the cost of employees loaned to nonprofit organizations is accounted for because it represents a tax deductible contribution.
- ¹¹ Long-term research and development is also considered a capital cost. Libraries bemoaning the lack of R&D money might want to think of including an R&D line in their capital budgets.
- ¹² In order to ensure that the expenditures budgets of the five libraries in California were comparable, they had to agree on a common definition of a capital cost.
- ¹³ The source for identifying commercial rental rates, broken down city by city, and neighborhood by neighborhood is *Black's Leasing Guide* series, which is published annually by McGraw Hill Information Systems, Co., Red Bank, New Jersey. In calculating the cost of space, it is important to base it on Black's definition of "usable" space, which is interior space not of nonusable space occupied by toilets, elevators, corridors, pillars, and space used for electrical and other building-related services.

- ¹⁴ The percentage shares of "direct labor" are calculated using data gathered through a Time Allocation Survey during the study.
- ¹⁵ Weech and Goldhor (1984) report that 54 percent of questions required one source while the remainder required from two to four or more sources (23 percent required two, 10 percent required three, and 13 percent required four or more).

REFERENCES

- Dosa, M., & Nusberg, C. (1993). *A generalized model of an international research and experience sharing system*. Budapest, Hungary: International Congress of Gerontology.
- Robinson, B. M. (1989). *Costing question handling and ILL/photocopying: A study of two state contract libraries in New Jersey*. Trenton, NJ: New Jersey State Library.
- Robinson, B. M. (1991a). Costing question handling and ILL/photocopying: A study of two state contract libraries. *The Bottom Line*, 4(2), 20-25.
- Robinson, B. M. (1991b). Chapter 2: Costing library services. In Ellsworth Associates (Ed.), *Final report: Study of cities and county library services*. Palo Alto, CA: Ellsworth Associates.
- Robinson, B. M. (1991c). Chapter 3: Cost sharing formula. In Ellsworth Associates (Ed.), *Final report: Study of cities and county library services*. Palo Alto, CA: Ellsworth Associates.
- Weech, T., & Goldhor, H. (1984). Reference clientele and the reference transaction in five Illinois public libraries. *Library & Information Science Research*, 6(1), 21-42.