

ASLIB READER SERIES

VOLUME 5

**COSTING AND
THE ECONOMICS
OF LIBRARY AND
INFORMATION
SERVICES**

**EDITED BY
STEPHEN A. ROBERTS**

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Aslib

SERIES EDITORS: PETER J. TAYLOR and RUTH FINER

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INTRODUCTION

In due course definitive treatises will be written on costing and management accounting for libraries, and on the theory of library economics. For the time being the selection of papers in this volume of readings may help to fill part of that gap in the literature, at the same time as making some of the more significant contributions more readily available and better known. In the last twenty years a growing body of literature on costing and library economics has appeared, to reinforce the already considerable and growing literature on library finance, operational research, library and information service evaluation, and performance measurement. Yet in spite of this volume of professional thought and writing there has been only a very slow emergence of consensus about the most appropriate body of theory, and the practical importance of supporting techniques of costing, accounting and performance measurement. However, the growing economic pressures upon libraries and the effects of technological change must bring the time closer when the essentials of new theories and practices will emerge as part of the operational corpus of library management.

It is the editor's conviction that an interest in, and understanding of, the costs of library and information service operations provide a good introduction to other and often deeper realms of economic analysis. At its best, economics is a practical discipline, using theory where necessary to understand the fundamental aspects of the economic process of choice, and to address the question of the best use of resources applied to given ends of production and service.

With these observations and considerations in mind the selected readings are designed to provide a progressive introduction from the cost analysis to the economic analysis of library operations. Economic analysis is hardly possible in empirical terms without cost data, and on the other hand cost data alone is of little value if its economic contexts are not appreciated and understood. Four out of the five sections of this reader are concerned broadly with cost studies and cost accounting. In the fifth section there is a deliberate shift to a more synthetic approach, offering what might come in future to be the outlines of a managerial economics for libraries. In these terms managerial economics would be envisaged as a blend of management accounting and applied economics directed towards the decision problems which library managers have to face in the area of resource allocation and service performance.

The first section deals with the context and concepts of library and information service costs by presenting two descriptions of cost accounting and economic analysis. The second section covers papers concerned with investigating and measuring the system being costed. Whether the 'system' is a relatively minor task or group of tasks, or a major segment of a library service, common principles of analysis apply. Many cost analyses have to begin with some systems analysis in order to determine exactly what has to be costed, by whom it is done, and what resources are allocated to and consumed by the process. The third section, entitled basic approaches to service costing, shows how the concepts introduced in the first section, coupled with the techniques discussed in the second, can be melded together to provide operational techniques for cost analysis. The emphasis in this section is on methods, and it is followed in section four by papers which discuss practical cost studies. It is not possible to reproduce papers exemplifying every type of cost study, and those selected are mainly concerned with the cost analysis of direct process operations. The concept of cost-effectiveness is introduced and exemplified in the context of budgeting. The extensive literature on library budgeting is not reviewed in this reader, but it must

be remembered that the budget as a plan of projected expenditure should be built upon a basis of rational economic choice and decision making — that at least is the laudable theory to follow. The achievement of that rational choice would be part of the substance of managerial economics. The fifth section is a broad selection of papers dealing with some of the main issues in library economics. Cost-effectiveness and cost-benefit analysis loom large in these wider discussions of library economics. Thus, the thread of cost data is drawn through basic cost analysis of library operations in order to reach a better understanding of multivariate economic reality.

FURTHER READING

- COOPER, A. *Financial aspects of library and information services: a bibliography*. Loughborough, Centre for Library and Information Management, 1980. (CLAIM Report no. 5).
- DOUGHERTY, R. M. and LEONARD, L. E. *Management and costs of technical processes: a bibliographical review 1876–1969*. Metuchen, N.J., Scarecrow Press, 1970.
- HINDLE, A. and RAPER, D. The economics of information. *Annual Review of Information Science and Technology*, 11, 1976, 27–54.
- MICK, C. K. Cost analysis of information systems and services. *Annual Review of Information Science and Technology*, 14, 1979, 37–64.
- WILSON, J. H. Costs, budgeting and economics of information processing. *Annual Review of Information Science and Technology*, 7, 1972, 39–67.

Cooper and Dougherty are two useful bibliographies for exploring topics on costing, finance and library economics. The review chapters in *ARIST* by Hindle and Raper, Mick, and Wilson provide a varied selection of references and leads to further papers, and the commentaries trace the evolution of professional discussion on the topic.

GENERAL NOTE ON FURTHER READINGS

The suggestions for further reading given at the end of each introductory section are chosen very selectively. It is doubtful whether even the most carefully chosen list would be representative or comprehensive of relevant papers, and users' needs for additional reading vary a good deal. Those papers cited will help the reader broaden the search for knowledge on the topic concerned. The bibliographies in many of the papers reproduced could also be used as a source for further reading. The papers chosen for further reading are from UK and US sources, but it should be noted that contributions to cost and economic studies of libraries and information services have been made particularly by German, Australian, Canadian and Scandinavian authors. The literature for further reading not cited here is quite scattered and not especially coherent; many useful contributions are made at conferences and are to be found in volumes of proceedings and/or book chapters.

1 LIBRARY AND INFORMATION SERVICE COSTS: CONTEXT AND CONCEPTS

1. LIBRARY AND INFORMATION SERVICE COSTS: CONTEXT AND CONCEPTS

The purpose of the two introductory papers is to provide basic familiarity with the main concepts of costing, cost accounting and their application in a number of broader areas of economic analysis. Even the experienced practitioner may still encounter problems created by the lack of standard definitions and concepts; at the very least some revision is always profitable. In reviewing the literature of costing for library and information management there is a dearth of papers which could be read as a broad general introduction to the topic. The papers by Hayes and Becker (1970) and Schwuchow (1977) together summarize some of the essential concepts, even though their original intention was perhaps not directly considered with that service in mind. Hayes and Becker's paper forms a chapter in their well known monograph on library automation, which has become a classic source from the early days of library computer applications in the late 1960s. Schwuchow's paper also takes the perspective of computer-based documentation services, although it has its origins in some very specific cost study research. The respective origins of these papers in the literature of libraries and computers is significant. The computerization of library and information processes has provided a driving force for a revitalized study of all the economic aspects of the processes of information transfer and management. The computer revolution in libraries and information led to the application of system study and systems analysis techniques, and these are often a useful and necessary prerequisite to cost studies. Computer applications have challenged the bases upon which all library and information tasks have been undertaken. The question of alternatives to manual operations and the variety of optional methods for implementing computer techniques have called for cost analysis, so that resource allocation decisions are economically based and buttressed by measurements of the cost consequences of different decisions.

Hayes and Becker begin by summarizing what they then felt to be the state of the art on cost studies — largely inadequate for management purposes. After offering definitions of what cost accounting is and is not, they proceed to a discussion of general principles. The essential point made is that cost accounting is a wide ranging and systematic activity; it is considerably more than just the establishment of the cost for a task. Four main stages in cost accounting are then discussed. The first stage is the collection and recording of cost data, involving the identification of processes and tasks, the identification of the sources of expense, a system of coding the sources of cost and expense, the packaging and repackaging of cost data by focus (for example, by document type, by department, by subject, by type of resource consumed and input), and the identification of labour times expended with the associated volume of material handled. The second stage concerns the allocation of overhead costs; basically the indirect costs as distinct from the direct variable costs of production. The third stage deals with the input of cost accounting data to some form of management information system, which includes the fourth stage of reporting. Two further topics are raised. Cost accounting and budgeting are related to each other, and must be explored by reference to the generation of unit cost data. These topics are logically related to a mode of operation which, within an overall framework of resource allocation, would relate costing and work measurement to cost accounting, budgeting and performance measurement by means of a management information and/or decision support system. Such matters provide the substance of the editor's monograph: Roberts, S. A. *Cost management for library and information services*. London, Butterworths, 1984 (In press).

The introduction to Schwuchow's paper begins with the simple cost accounting theme espoused by Hayes and Becker, but then goes on to the wider perspective of economic analysis and evaluation. The essential point of this paper, which uses the general model of an I&D system (information and documentation system), is to show the need for basic cost data as an essential element of more sophisticated measures of evaluation and performance. Cost-efficiency, cost-effectiveness, cost-value and cost-benefit are introduced as management tools. The latter part of Schwuchow's paper goes on to stress that cost analysis carried out in isolation is of limited value. However, the difficulty of integrating cost analysis with the other variables which enter into information service has to be realized. Schwuchow's research group nevertheless believes a start can be made on tackling these problems. Later papers in this reader develop these themes of the relationship between economic indices and measures and more embracing concepts of service, value, benefit and performance.

FURTHER READING

FLOWERDEW, A. D. J. and WHITEHEAD, C. M. E. *Cost-effectiveness and cost-benefit analysis in information science*. London, London School of Economics, 1974. (OSTI Report 5206).

SIZER, J. *Insight into management accounting*. 2nd edition. Harmondsworth, Penguin Books, 1979.

The report by Flowerdew and Whitehead is a useful discussion of principles not easily obtained in such convenient form elsewhere. The monograph by Sizer is typical in content and approach of many discussions of management accounting, and provides an idea of the scope of the topic, and the place of cost studies, in the management of the business enterprise.

COST ACCOUNTING IN LIBRARIES

R. M. Hayes and J. Becker

Very few libraries have a sufficiently detailed picture of costs for their present operations to support scientific management. This lack of a cost picture has been long recognized in the historical and continuing discussion of the need for adequate cost accounting in library operations.¹⁻⁴ In fact, the need relates not so much to the issue of data processing as to the issue of good library management. Basically, good cost data is a prerequisite for the development and support of adequate budgets, and for the evaluation of alternative services and procedures, whether mechanized or not.

For these reasons it is essential to consider the introduction into the library of an adequate, detailed, cost accounting system. Although we are viewing the matter in the context of mechanization, it is important to reiterate that it has meaning to the library independent of this context.

DEFINITIONS

Before discussing the issues in cost accounting, let us make some important distinctions so that cost accounting is viewed in the proper perspective.

¹ Adams, Charles, J., "Statistical Chaos: Technical Services in Public Libraries," *Library Journal*, 91 (9) (May 1, 1966), 2278-2280.

² Parker, Ralph H., "Aspects of the Financial Administration of Libraries," *Library Trends*, April 1963.

³ Rider, Fremont, "Library Cost Accounting," *Library Quarterly*, 6 (1936), 331-381.

⁴ Brutcher, Constance, et al., "Cost Accounting for the Library," *Library Resources and Technical Services*, 8 (Fall 1964), 413-431.

1. *The distinction between cost accounting and methods analysis.* Many of the articles written about the measurement of costs in library operation have focused on detailed work measurement as part of a general methods analysis approach.^{5,6} It is, therefore, important to recognize that a cost accounting system is basically different from methods analysis, although there is an important role for each. Specifically, in methods analysis (and work measurement), the intent is to evaluate quite detailed differences between ways of executing specific operations. In contrast, cost accounting is a management tool for control of an entire organization.⁷ As a result, the level of detail required for work measurement is considerably finer than that involved in a cost accounting system.

2. *Cost accounting versus ad hoc cost studies.* Again, most of the articles written concerning library costs have reported one-time studies. In contrast to them, the value of the cost accounting system lies precisely in the continuing picture that it provides. We must emphasize that a cost accounting system is a tool for management of the library. It is valuable not only in providing a continuing picture of costs but also in the highlighting of *changes* in costs, in the single library, over time.

3. *Cost accounting versus library statistics.* Libraries have a tradition of maintaining various statistics—the number of books acquired, the number of titles cataloged, the number of volumes circulated, and the number of reference questions handled. But there is a great difference between statistics and cost accounting. In a sense, statistics provide only one side of the picture; they fail to describe what it costs to acquire a book, to catalog a title, to circulate a volume, or to answer reference questions.

4. *Cost accounting versus bookkeeping.* It might be argued that any library must maintain cost data in order to control its budget.^{8,9} The problem, however, is that only rarely are the general bookkeeping accounts adequate for the evaluation of costs. Again, budget control presents only part of the picture, since it separates costs from the statistics of performance. However, it is clear

⁵ Niteck, A., et al, "Cost Accounting Forms (Guides to aid librarians to determine the unit cost of technical services of a library)," *Michigan Librarian*, 29 (December 1963), 19-21.

⁶ Pierce, Watson O'D, *Work Measurement in Public Libraries*. New York: Social Science Research Council, 1949.

⁷ Horngren, Charles T., *Cost Accounting: A Managerial Emphasis*. Englewood Cliffs, N.J.: Prentice-Hall, 1962.

⁸ Price, Paxton P., "Budgeting and Budget Control in Public Libraries," *Library trends*, XI (April 1963), 402-412.

⁹ Price, Paxton P., "Financial Administration" in *Local Public Library Administration*, edited by Roberta Bowler, Chicago: International City Managers' Association, 1964, pp. 114-147.

that most libraries, in fact, now acquire almost all of the data—in statistics and in budget control—required for a cost accounting system. The cost accounting system, by tying together the statistics with costs, provides the total picture. The necessity is to do this in detail sufficient for the purposes of management control, but not in such detail as to impose an unbearable burden.

In summary, a cost accounting system is continuing rather than intermittent; it is concerned with the total library and not with some detailed aspect of it; and it ties together costs with effectiveness rather than being concerned with simply one or the other. Cost accounting is a management tool of primary value to the librarian in his day-to-day control of his own library. It is only of incidental value in comparisons of one library to another. The importance to good management is illustrated by the listing (Figure 4.1) of typical management reports that would be the continuing product of a good cost accounting system.

It must be recognized, however, that a cost accounting system for library operation does pose some significant problems. It is relatively easy to accumulate statistics or to control budgets; it requires a recording system to tie the two together. As a result, a cost accounting system represents a cost in itself. Its costs must be weighed against values received.

Figure 4.1 Management and Cost Accounting Reports

Management Reports

1. Direct cost total by account and by unit of work, for each account.
2. Overhead cost, by category, and as a percentage of both direct salary and total direct cost.
3. Total cost—direct and indirect, by administrative unit.
4. Each of these by time, by time period.
5. Time delays and backlogs, by department and by type of material.

Cost Accounting Reports

1. Weekly Transaction Listing
 2. Weekly Labor Report
 3. Weekly Inventory Usage Report
 4. Weekly Cost Distribution Report
 5. Cost Center Cost by Account Report
 6. Cost Center Product Allocation Report
 7. Fringe Calculation Report
 8. Work-In-Progress Count Report
 9. Work-In-Progress Calculation Report
 10. Work-In-Progress Ledger Report
 11. Work-In-Progress Summary Report
 12. Cost Center Analytical Report
 13. Cost Center Rate Report
-

Furthermore, the library represents a kind of organization for which accounting practice has developed few guidelines. First, the "product" of the library is a set of services, based on continuing investment in acquiring and cataloging a collection of information (the books and journals). There are still no standards for capitalizing such investment or for determining how overhead should be calculated. Second, most libraries are not "profit-making" institutions. Yet, most accounting practice is oriented to the need to determine the *profitability* of individual products of an organization. It is only recently that the value of cost-accounting data has been considered as part of the decision processes in *allocation of resources*. It is the latter, however, which is usually of importance in the library.

A fact that, in the past, has complicated the problem in introducing a cost accounting system in libraries has been the general lack of availability of the mechanized equipment for processing the comparatively large volume of recorded data involved. For many libraries this may still represent a significant barrier, but as the larger libraries gradually introduce mechanical procedures for various clerical operations, and as the smaller libraries combine into library systems, these difficulties should become relatively minor. In fact, the principle should be adopted that whenever a program for mechanization is initiated, a parallel system for cost accounting should be considered as well.

Perhaps the most significant barrier to the introduction of a cost accounting system in the library is the extent to which it will find acceptance by the library staff itself. Professionals rightly are very reluctant to have their performance, in any way, "measured." Actually, intellectual work is, by its nature, difficult (if not impossible) to measure and, where measurement is attempted, all too frequently it causes a misunderstanding of what was actually accomplished. Library work, in particular, involves such an intermixture of intellectual with clerical processes that measurement of them is almost certain to create many difficulties. Thus, even if we recognize the value of a cost accounting system to library administration, we must be aware of its effect on the professional staff. Basically, the only answer to this problem lies in the extent to which the system for recording, processing, and reporting is simple and includes a means for recognizing the intellectual content of library work. But it is useful to provide the staff with advance explanation of the value of a cost accounting system to both the organization and the individual, with emphasis on the fact that cost data is used to aid in making valid judgments not to replace them.

GENERAL PRINCIPLES OF COST ACCOUNTING

A cost accounting system is a procedure for recording operations, times, and costs for various parts of an organization, together with a procedure for

processing, reporting on, and acting upon the resulting data. It must include provision for representing all sources of costs, including the salaries of staff and administrative personnel, capital investment, and all categories of expense. It must include provision for the measurement of work performed in terms of both quantity and, for library operations, quality and complexity. It must include provision for the recording of the time required to handle given operations.

In the recording of this data, a distinction is usually made between "process costing," where the data is related to a specific process, and "job costing" where the data is related to a specific item being processed. Let us explain the basis of the distinction. In the acquisition of a single book, we see a succession of processes—ordering, receiving, cataloging, mechanical preparation, and shelving.¹⁰ If we are concerned only with the issue of costs for these individual processes, it would be sufficient to have a cost accounting system that simply recorded data about each of them. But if we wish to relate costs to different types, forms or kinds of material, we need the more detailed job costing system that ties costs to the specific item being processed as well. The point is that job costing involves the same processes that process costing would account for, but the detail will be much greater. Figure 4.2 is an approximate classification for operations in the library into those for which process costing seems appropriate and those for which job costing may be desired. It further summarizes some of the distinguishing characteristics of the two.

No matter what form of recording and amount of detail is utilized, there are always certain costs that cannot reasonably be assigned directly to a process or to a job. Administration, for example, is required for all operations in the library, and its costs cannot rationally be ascribed specifically, say, to the cataloging of a particular book. The distinction, therefore, is made between these costs that can be related to a specific process or job (called direct costs) and the costs that cannot be (called indirect costs or overhead). The importance of this distinction arises when we ask the question, for example, "What does it cost to catalog a book?" Clearly the costs of administering the library, of payroll accounting, of rent, and of utilities must, in some sense, be considered as part of the costs of cataloging a book. The issue is: How should these indirect costs be allocated to particular processes or jobs? The variety of possibilities for such allocation is great, but the usual basis is to allocate the indirect costs proportionally to the direct ones. However, some specific issues must be resolved: (1) Should the storage space for the collection be regarded as an overhead expense, or should it be included in the allocation to cataloging or to reader services for which the collection seems more directly related? (2) In the allocation of administrative expenses, should the costs of the book be regarded

¹⁰ Franklin, Robert D., "Book Acquisition Costs," *Library Journal*, 90 (April 1, 1965), 1512-1513.