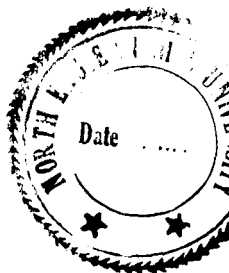


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A Study of the Characteristics,  
Costs, and Magnitude of  
Interlibrary Loans in Academic Libraries

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# A Study of the Characteristics, Costs, and Magnitude of Interlibrary Loans in Academic Libraries



ASSOCIATION OF RESEARCH LIBRARIES  
WASHINGTON, D.C.

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# Contents

<i>Chapter</i>	<i>Page</i>
<b>Preface</b>	<i>vii</i>
<b>Acknowledgments</b>	<i>ix</i>
<b>1 Summary</b>	<i>3</i>
<b>2 Introduction to the Study</b>	<i>5</i>
2.1 Problem	<i>5</i>
2.2 Objective	<i>6</i>
2.3 Summary of methodology	<i>7</i>
2.4 Universe of academic libraries	<i>7</i>
2.5 Sample size and response	<i>9</i>
2.6 Definitions and scope	<i>10</i>
<b>3 Interlibrary Loan Costs</b>	<i>13</i>
3.1 Introduction	<i>13</i>
3.2 Scope of cost study	<i>13</i>
3.3 Direct costs	<i>15</i>
3.4 Total interlibrary loan costs for large academic libraries	<i>16</i>
3.5 Borrowing and lending costs	<i>17</i>
3.6 Cost per transaction	<i>21</i>
3.7 Costs for interlibrary loan activities in branch libraries	<i>24</i>
3.8 Cost estimates for individual sample libraries	<i>27</i>

<i>Chapter</i>	<i>Page</i>
<b>4 Characteristics and Magnitude of Interlibrary Loans</b>	<b>33</b>
4.1 Introduction	33
4.2 Distribution and characteristics of interlibrary loans	33
4.3 Future magnitude of interlibrary loans	48
<b>References</b>	<b>53</b>
<i>Appendix</i>	
<b>A Reported Interlibrary Loan Policies</b>	<b>55</b>
<b>B Survey Methodology</b>	<b>61</b>
<b>C Data Preparation and Tabulation</b>	<b>102</b>
<b>D Sample Design</b>	<b>110</b>
<b>E Sample Institutions</b>	<b>118</b>
<b>F Estimation and Determination of Sample Weights</b>	<b>121</b>
<b>G Collection Costs</b>	<b>125</b>

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# Preface

The investigation of interlibrary loans among academic libraries was initiated by the Interlibrary Loan Study Committee of the Association of Research Libraries. It was seen as a fundamental first step toward the solution of current problems and the exploration of the means to improve interlibrary loan services nationally. This report provides solid information that is basic to any future planning at the national level.

The committee originally proposed a broader study which would have covered all aspects of interlibrary lending and borrowing. It became clear, however, that such an effort would be too large to yield valid findings in a relatively short period of time. Consequently, it was decided that the problems should be attacked in stages.

A grant for the study was made to the Association by the National Science Foundation. Westat, Inc., a research firm with experience in this type of investigation, was chosen to undertake the project. Although the principal investigators received advice from the committee and the executive officers of the Association, the responsibility for the research and the report belongs entirely to Westat.

This report answers some important questions about interlibrary loans, but several critical problems remain unexplored. It is hoped that they will be addressed by future studies. Among these important problems are the following:

1. The Value of an Interlibrary Loan: This is difficult to establish and unquestionably it will vary according to local circumstances.

It would provide an important cost perspective during this period of budgetary constraints.

2. **A National Interlibrary Loan System:** A national system—or systems—could distribute the lending load more equitably, and could include appropriate methods for reimbursing those large libraries which are carrying an excessive lending burden and which are serving as de facto national libraries.
3. **Amortized Collection Costs:** These also would be difficult to establish, but it is important that they be determined if large research libraries are to serve as national resource libraries.
4. **Comparative Study of State Systems:** State systems are an essential element in the total interlibrary lending picture. There is sufficient information at present on the more effective patterns of service.
5. **The National Lending Library Concept:** The Boston Spa operation in England appears to be effective, but the transferability of that concept to this country needs to be examined thoroughly.

ARTHUR M. McANALLY, CHAIRMAN  
*Interlibrary Loan Study Committee*

*September 24, 1971*

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# Acknowledgments

An Interlibrary Loan Study Committee of Arthur McAnally, Director, University of Oklahoma Libraries; Gordon R. Williams, Director, The Center for Research Libraries; H. Gordon Bechanan, Associate University Librarian for Resources and Acquisitions, Harvard University Library; David W. Heron, Director, University of Kansas Libraries; and Sarah Katherine Thomson, Librarian, Bergen Community College, served in an advisory capacity throughout the study. In addition, both Stephen A. McCarthy, Executive Director, and Louis E. Martin, Associate Executive Director, Association of Research Libraries, played major advisory roles.

The Interlibrary Loan and Reference Departments of McKeldin Library, University of Maryland were of great assistance in the development of the data collection tools. Mr. James Chandler, Assistant Director of Reader Services and his staff members received and commented upon drafts of the questionnaires and data collection forms. In addition, the interlibrary loan staff participated in a pretest of the forms.

We are also particularly grateful to the directors and the interlibrary loan and reference staffs of the sampled libraries for their cooperation and assistance in the data collecting phase of the project. Special appreciation goes to the directors and staffs of the twelve libraries which participated in the cost study. The institutions were: Brown, Princeton, Columbia, Michigan State, Minnesota, Chicago, Texas A&M, North Carolina at Chapel Hill, Duke, Arizona, U.C.L.A., and Stanford.

*x—Acknowledgments*

Edwin E. Olson, Professor, School of Library and Information Services, University of Maryland, served as consultant to Westat. Morris H. Hansen, Westat, played a key role in the sample design for the study.

WESTAT, INC.

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**A Study of the Characteristics,  
Costs, and Magnitude of  
Interlibrary Loans in Academic Libraries**

## Summary

This report presents the results of a national probability sample survey of the costs, the characteristics of materials loaned and borrowed, and the present and future magnitude of interlibrary loans for academic libraries.

A basic sample of 80 academic institutions was drawn to obtain the noncost data with 67 main libraries and 73 branch libraries responding.

Cost data were obtained from a subsample of 12 large main libraries and 13 associated branches.

The average lending cost per request for large academic libraries, based on direct costs and a 50 percent overhead rate, was as follows:

\$2.12 for an unfilled loan request  
\$4.67 for a filled loan request

A wide range of costs among the sample of 12 main libraries was evident, e.g., from \$6.81 to \$2.05 for a filled loan request.

From the sample of 12 main libraries, no consistent relationship was found between lending cost per transaction and collection size.

Lending cost per transaction appeared to be related to the geographical location of the library.

#### 4—*Characteristics, Costs, and Magnitude of Interlibrary Loans*

Variations in lending costs may result from the proportion of professional staffing, library physical centralization, and, of course, efficiency of the unit.

About 60 percent of all loan requests received in academic libraries originated in other academic libraries.

Of the loan requests received in academic libraries, about 71 percent were filled.

For loan requests processed in academic libraries, the form of the material supplied was as follows:

Original	—	54%
Photocopy	—	43%

About 54 percent of the loan requests that could not be filled by academic libraries were reported Not Owned.

The current trends indicate that, by 1975, interlibrary borrowing by academic libraries may increase to about 2 million volumes per year, and requests for loans processed in academic libraries may exceed 3 million volumes.

# Introduction to the Study

## 2.1 Problem

Interlibrary lending in the United States reached a significant level about fifty years ago, partially in recognition of the need for such borrowing, partially as a courtesy, and partially in recognition of the interdependence of libraries. It was expected that in each library lending would tend to be balanced by borrowing, so that the costs of lending and the inconvenience to a library's own patrons caused by the absence of materials away on loan would be offset by the advantages of cooperation. To provide safeguards and assure reasonable use, libraries agreed to certain limitations on what could be requested on interlibrary loan and for whom materials might be borrowed. These and similar rules were promulgated in the American Library Association (ALA) Interlibrary Loan Code of 1917, which has been revised occasionally over the years. The primary purpose was to serve research. This system worked well for many years.

Under the pressure of an ever-growing flood of research during the past twenty years, however, a phenomenal increase in interlibrary borrowing and lending has occurred throughout the nation, with no end in sight. In addition, improvements in the quality of education and in the intellectual interests of citizens have brought new dimensions of need. Originally conceived as a tool for research, many people now feel that the scope of interlibrary loans must be expanded to serve purposes of general information, teaching and learning, and recreational-avocational interests. Such expanded service is reflected in the creation of

# Interlibrary Loan Costs

## **3.1 Introduction**

The single most important objective of this study is to make available data on the costs of interlibrary loans by academic libraries. Foremost in the establishment of sound library management policies, with regard to interlibrary loans, is valid cost data that can be used for planning at both the national and local level. Several large academic libraries have conducted their own in-house cost studies, but there is the requirement of cost data which can not only serve the individual library but which can also provide the building blocks for planning at the national level. It was this need that prompted the Association of Research Libraries to undertake this project.

## **3.2 Scope of cost study**

Funds were not available to conduct a cost study which would be projectable to all sizes of libraries. Within the budget constraints, the goal was to investigate the area which appeared to offer the greatest payoff or impact. Since a choice was necessary as to which part of the universe of all university and college libraries could be investigated, the large lending libraries were chosen. The Thomson study [4] reported that 69 percent of all academic loans in the United States were made by 63 large libraries. It appeared reasonable that the greatest potential impact should be towards the resolution of the present inequities of the system with regard to those libraries most involved in the interlibrary loan activities.

# Characteristics and Magnitude of Interlibrary Loans

## **4.1 Introduction**

The characteristics and distribution patterns of interlibrary loans have been explored in numerous studies and surveys, e.g., [4], [7], [8], and [9]. Most of these previous studies, however, have focused on special classes of interlibrary loans such as serial publications, scientific publications, medical publications, or loans within a certain geographical area. The purpose of this chapter is to report the specific findings of this project in regard to the characteristics and magnitude of interlibrary loans. The results are compared and contrasted with the findings of other studies where appropriate. The findings are based on data reported by the 71 responding academic libraries, and their branches, out of the original sample of 80 main libraries. Appendix A reviews ILL policies reported by the sample libraries.

## **4.2 Distribution and characteristics of interlibrary loans**

All the data presented in this section were collected by means of the Characteristics Data Forms (forms 3 and 4, shown in Exhibits B-7A and B-7B, Appendix B). Because of the magnitude of data available and the numerous cross-tabulations possible, only the most meaningful relationships and characteristics have been selected for presentation and discussion.

The figures presented in this section are based on weighted counts of the borrowing and lending forms processed for each of the participating

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## References

1. Thomson, Sarah K. *Interlibrary Loan Procedure Manual*. Chicago, American Library Association, 1970.
2. U.S. Department of Health, Education and Welfare, Office of Education. *Library Statistics of Colleges and Universities: Data for Individual Institutions, Fall 1968*, by Joel Williams. Washington, Government Printing Office, 1969.
3. *American Library Directory, 1970-1971*. New York, R. R. Bowker Company, 1970.
4. Thomson, Sarah K. *General Interlibrary Loan Services in Major Academic Libraries in the United States*. Columbia University, D.L.S. Thesis, 1967.
5. Williams, G., Bryant, E. C., Wiederkehr, R. R. V., Palmour, V. E., and Siehler, C. *Library Cost Models: Owning Versus Borrowing Serial Publications*, 1968.
6. Blackburn, Robert H. "Photocopying in a university library," *Scholarly Publishing*, October 1970.
7. Wood, James L. *A Review of the Availability of Primary Scientific and Technical Documents Within the United States*, Chemical Abstracts Service, October 1969.
8. Schilling, Charles W. *A Study of the Interlibrary Loan Activity of the National Library of Medicine for the Fiscal Year 1967*, 1968.
9. Nelson Associates, Inc. *Interlibrary Loan in New York State*, New York, 1969.

# Reported Interlibrary Loan Policies

Items A through I of the questionnaire (Form 2, pages 1, 2 and 3, shown in Exhibit B-4, and Form 5, pages 5, 6 and 7, shown in Exhibit B-8, Appendix B) were designed to collect information on general interlibrary loan policies. Emphasis was placed on those basic library policies that affect the volume and characteristics of interlibrary loan activities. Respondents were requested to answer questions A through I in terms of general procedures, even though it is realized that exceptions and special cases do occur.

Most of the policy questions required yes/no answers and were relatively easy to code and tabulate. Questions F, H, and I, however, were open-ended. Answers to these questions were reviewed at Westat and general categories were developed for coding purposes. The total number of respondents was 144 libraries, including both main and branch libraries.

Throughout the tables in this appendix, the No Answer column indicates questions or items left blank. The Not Applicable category classifies questions and items left blank, but with a reason specified, such as "We have no undergraduates," or "We conduct no borrowing activities through the interlibrary loan."

Question A asks for specification of the types of patrons for which a library will initiate an interlibrary loan. The responses are shown in Table 1. Clearly, a large majority of libraries will borrow for master's and doctoral degree students and nonteaching and research staff, while

**TABLE 1 Borrowing policy: status of patron**

Status of patron	Percentage				Total
	Yes	No	No answer	Not applicable	
Undergraduates	45.1	47.9	0.7	6.3	100.0
Master's degree candidates	93.1	2.1	1.3	3.5	100.0
Doctoral degree candidates	93.1	1.4	2.0	3.5	100.0
Nonteaching and research staff	93.8	0.7	4.1	1.4	100.0

only slightly under 50 percent of the libraries sampled will borrow for undergraduates.

Policies regarding the types of publication a library will generally attempt to borrow are explored in Question B. Tabulation of the responses produced Table 2.

**TABLE 2 Borrowing policy: type of publication**

Type of publication	Percentage				Total
	Yes	No	No answer	Not applicable	
Theses (master's or undergraduate)	91.7	6.3	1.3	0.7	100.0
Doctoral dissertations	84.7	12.5	2.1	0.7	100.0
Reference books	25.7	69.5	4.1	0.7	100.0
Rare books	50.7	45.8	2.8	0.7	100.0
Films	50.0	43.8	4.8	1.4	100.0
Recordings or tapes (audio)	38.9	54.2	5.5	1.4	100.0
Microforms	78.5	17.4	3.4	0.7	100.0
Maps or prints	45.1	49.3	4.9	0.7	100.0

In Question C, the libraries were asked whether, as a borrowing library, if charged for photocopying by the lending library, reimbursement is expected from the reader. Tallies show that 61.8 percent of the libraries sampled do generally pass photocopying charges on to their

patrons, whereas 25.7 percent absorb these costs within the library. In addition, 10.4 percent of the respondents indicated that in some cases reimbursement is expected, but that in others it is not. The primary example of this variation in policy is the case of special funding for a state or regional system to provide free photocopies; photocopies supplied by libraries outside the system, however, are paid for by the patron. For 0.7 percent (one library), the question was not applicable, and 1.4 percent (two libraries) failed to answer.

Question D calls for designation of the types of readers for which a library will attempt to fill an interlibrary loan request. The results are presented in Table 3. It appears that, in most instances, requests to borrow are not denied on the basis of status of intended reader.

**TABLE 3 Lending policy: status of patron**

Status of patron	Percentage				Total
	Yes	No	No answer	Not applicable	
<b>Undergraduates</b>	73.6	25.7	0.0	0.7	100.0
<b>Master's degree candidates</b>	98.6	1.4	0.0	0.0	100.0
<b>Doctoral degree candidates</b>	100.0	0.0	0.0	0.0	100.0
<b>Nonteaching and research staff</b>	97.9	0.7	1.4	0.0	100.0

In Question E, the libraries were to indicate which types of material they are generally willing to supply either in the original or by photocopy. Each library responded only for those items included in its collection. Tabulation of the responses appears in Table 4. The Not Applicable classification indicates the proportion of libraries which do not hold that particular form of publication in their collections.

Although 43 percent of the responding libraries indicated that they generally do lend doctoral dissertations in the original, this figure must be qualified. Within the 43 percent, 31.9 percent answered that the original is lent in all cases. The remaining 11.1 percent responded that the original is lent only if published prior to the year in which the library joined University Microfilms; to obtain dissertations written after that year, the borrowing library must purchase copies from University Microfilms.

**TABLE 4 Lending policy: type of publication**

Type of publication	Percentage				Total
	Yes— original	Yes— photocopy	No	Not applicable	
<b>Theses (master's or undergraduate)</b>	59.0	16.0	8.3	16.7	100.0
<b>Doctoral dissertations</b>	43.0	11.8	13.2	32.0	100.0
<b>Reference books</b>	6.9	13.9	76.4	2.8	100.0
<b>Rare books</b>	21.5	9.0	56.9	12.6	100.0
<b>Films</b>	18.1	4.2	13.9	63.8	100.0
<b>Recordings or tapes (audio)</b>	15.3	2.1	35.4	47.2	100.0
<b>Microforms</b>	54.9	13.2	16.7	15.2	100.0
<b>Maps or prints</b>	26.4	5.6	33.3	34.7	100.0

Question F explored the verification policy of the lending library if the citation received is incomplete, ambiguous, or incorrect. Of the libraries surveyed, 95.8 percent generally attempt to verify incomplete, ambiguous, or incorrect citations. Only 4.2 percent do not verify.

The libraries indicating that they will attempt to verify were also asked to specify any limitations on the service. Westat developed categories by which answers to the limitation question were classified. Table 5 lists these categories and the percentage of answers falling into each one. Among the 95.8 percent of the libraries which do attempt to verify, 56.4 percent specified at least one limitation on the service, while 39.4 percent failed to answer. Since multiple answers were allowed, the responses total to more than 56.4 percent.

In Question G, the libraries were asked whether, as a lending library, they charge the borrowing library for photocopying. Of the libraries surveyed, 64.6 percent do charge the borrowing library for photocopies supplied and 15.3 percent do not. An additional 22.2 percent follow a policy of charging in some instances but not in others. As in Question C, the most prevalent explanation of this is that charges are not made if arrangements exist for the provision of free photocopies. Otherwise, the borrowing library is charged as usual.

Question H asks whether there are any particular types of libraries to which the respondent will not give interlibrary loan service. The tabulations show that 65.3 percent of the libraries surveyed provide interlibrary

**TABLE 5 Lending policy: verification of incomplete, ambiguous, or incorrect citations**

<b>Limitation on verification service</b>	<b>Percentage</b>
<b>No limit</b>	6.3
<b>Will make some effort but not extensive, especially if it becomes too time-consuming</b>	27.8
<b>Will check standard bibliographic tools only</b>	7.0
<b>Will make a special effort for (small) libraries lacking the tools</b>	9.0
<b>Will try to locate if borrowing library seems to have made a good effort and/or has provided a reference or source</b>	14.6
<b>Other</b>	7.7

loan service without restriction to all libraries. Another 15.3 percent also lend without restriction, but expressed various preferences such as not lending out of state or not lending to high school libraries. These restrictions plus those indicated by the 21 libraries (14.6 percent) which do not give interlibrary loan service to all libraries are summarized in Table 6. This question was not answered by 4.9 percent of the respondents.

**TABLE 6 Lending policy: libraries to which interlibrary loan service is not provided**

<b>Description of library</b>	<b>Percentage</b>
<b>Elementary or high school libraries</b>	16.7
<b>Commercial or business libraries</b>	2.8
<b>Libraries outside state or region</b>	4.9
<b>Other</b>	13.2

Again, multiple answers were possible, and thus the percentages add to more than 29.9 percent (total percentage of libraries specifying one or more restrictions).

Question I calls for discussion of library membership in academic cooperatives, consortia, or networks, and the effect of these arrangements on interlibrary loan operation. In summary, 84.7 percent of the respondents are involved in at least one cooperative, consortium, or network,

either formally or informally. Further, 72.2 percent also indicated that the arrangements affect interlibrary loan activities. Answers to Question I were reviewed at Westat and general categories were developed for coding purposes. The various arrangements and agreements described are summarized in Table 7. Multiple answers were accepted and tabulated.

**TABLE 7 Consortium or network memberships  
and cooperative agreements**

<b>Arrangement</b>	<b>Percentage</b>
<b>Regional Medical Library Program</b>	13.2
<b>Courier, delivery service</b>	19.5
<b>Union catalogs or lists; indices</b>	18.2
<b>State library cooperative or network; back-up or resource library</b>	26.5
<b>Telephone or teletype system</b>	22.2
<b>Formal academic consortium or cooperative</b>	29.2
<b>Research center; bibliographic center</b>	14.6
<b>Other</b>	11.8

# Survey Methodology

## **Survey instruments' development**

For the development of the data collection techniques, the probability sample of 80 institutions was divided into two components:

1. a subsample of 68 institutions from which noncost information was requested,
2. a subsample of 12 large institutions from which detailed cost data as well as the above noncost data were obtained.

In this way, identical noncost data were obtained from all 80 institutions, with additional data requested from the 12. During the questionnaire development phase, Westat drafted the various forms to be used and then reviewed them with Association of Research Libraries staff and the Advisory Committee to the Interlibrary Loan Study. The forms were also pretested at the University of Maryland.

Prior to Westat's initiation of data collection procedures, the Association of Research Libraries contacted the 12 large institutions by telephone followed by a letter and the 68 institutions by letter to explain and stress the importance of the study and to request cooperation. This initial contact by ARL certainly influenced the response rates, which were very high for all phases of the study. Of the 80 institutions contacted in this phase, 75, or 94 percent, agreed to participate.

It was recognized that, to obtain complete information on the interlibrary loan activities of academic institutions, data would have to be

obtained from the branch libraries which conduct ILL activities independent of the main libraries as well as from the main libraries of the 80 institutions. Therefore, a preliminary questionnaire accompanied by a cover letter reviewing the purposes of the study was sent to all institutions agreeing to participate (Exhibits B-1 and B-2). This questionnaire requested, for branch libraries, identifying information, approximate annual volume of interlibrary loan activities, and the approximate collection size. Branch libraries were defined as all research, college, departmental, divisional, and special libraries on or off the main campus, excluding unstaffed document collections. The information provided on this questionnaire was used to select branch libraries for inclusion in the survey and to determine the number of data collection forms and instructions to be sent to each library. It was decided that regardless of the volume of interlibrary loan activities, no library would be sent more than 200 or less than 10 of any one data collection form.

### **Collection of noncost data from the 63 institutions**

The volume of interlibrary loan activities varies greatly among the libraries in the sample. In order to obtain enough data from libraries handling a small volume and yet not overly burden those libraries with a large volume, two data collection time periods were specified:

1. a one-month time period for libraries with a small volume of ILL transactions,
2. a two-week time period for libraries with a large volume.

Approximately one month after the preliminary questionnaire was sent, each of the 63 cooperating institutions and their branches selected to be in the survey received by mail the following data collection forms:

1. *Exhibit B-3 — Cover letter*  
The main libraries of the 62 cooperating institutions received Exhibit B-3A while the branch libraries received Exhibit B-3B.
2. *Exhibit B-4 — Historical Data and Policy Questionnaire*  
This questionnaire requests information on library policies affecting the volume and characteristics of interlibrary loan activities. It also requests an annual summary of the volume of interlibrary loan activities for the five-year period 1965–1970 and a monthly summary for the year 1969–70.
3. *Exhibit B-5 — Description of Characteristics Data Forms*  
Libraries handling a large volume of interlibrary loan requests

received Exhibit B-5A, which defines a two-week data collection period, while those libraries handling a small volume received Exhibit B-5B, specifying a month of data collection.

4. *Exhibit B-6 — Procedure for Completing Characteristics Data Forms*
5. *Exhibit B-7 — Characteristics Data Forms*

The libraries participating in the study were requested to attach these forms to all requests made or received either until the end of the specified data collection or until the supply of Characteristics Data Forms was exhausted. These forms were then kept in the library's file for one month to provide time for the interlibrary loan requests to be filled. At the end of one month, all forms were sent back to Westat.

*Exhibit B-7A — Borrower's Form*

The borrowing library used this form whenever material was borrowed from another library.

*Exhibit B-7B — Lender's Form*

This form was used by the lending library whenever a request for material was received from another library.

Telephone calls were made to nonrespondents. Libraries which did not wish to participate fully were requested to fill out at least the Historical Data Questionnaire (Exhibit B-4).

### **Collection of data from the 12 large institutions**

Since detailed cost information was to be collected from these institutions, it was decided that Westat personnel would visit each participating library to collect some basic data, explain the study, and help implement the data collection procedures. The data collection period for all of these libraries was two weeks, with all forms being retained by the library for one month further to allow time for the requests to be filled.

The data collection package taken to each library by Westat personnel included:

1. *Exhibit B-8 — Data Collection Questionnaire*

The questionnaire was partially completed during interviews with library staff by Westat personnel. Other parts of the questionnaire were filled out by the library. The questionnaire obtains the policy and historical data of Exhibit B-4 and also information on staffing, procedures, and cost elements.

2. *Exhibit B-9 — Use of Data Collection Forms*

This page is a general instruction sheet.

3. *Exhibit B-10 — Daily Log*

These time sheets were filled out daily for the two-week time period by each person involved in interlibrary loan operations.

4. *Exhibit B-11 — Transaction Journals*

The Transaction Journals were color-coded to match the Characteristics Data Forms (Exhibit B-13) and were attached with the Characteristics Data Forms to the ALA forms. Each library was usually given half as many Transaction Journals as Characteristics Data Forms.

*Exhibit B-11A — Lender's Journal*

This form was attached to each ALA form placing a request on the lender's collection. Any individual performing an activity in processing the request recorded the date, time spent on the activity, and his name.

*Exhibit B-11B — Borrower's Journal*

This form was attached to each request submitted by the library on the collection of another library. Any individual in the borrowing library who performed an activity in processing the request recorded the date, time spent, and his name in the journal.

5. *Exhibit B-12 — Procedure for Completing Characteristics Data Forms*

6. *Exhibit B-13 — Characteristics Data Forms*

The libraries participating in the study were requested to attach these forms to all requests made or received either until the end of the specified data collection or until the supply of Characteristics Data Forms was exhausted. These forms were then kept in the library's file for one month to provide time for the interlibrary loan requests to be filled. At the end of one month, all forms were sent back to Westat.

*Exhibit B-13A — Borrower's Form*

The borrowing library used this form whenever material was borrowed from another library.

*Exhibit B-13B — Lender's Form*

This form was used by the lending library whenever a request for material was received from another library.

The participating libraries were encouraged to contact Westat to discuss any questions or problems.

# Data Preparation and Tabulation

Completed questionnaires and data collection forms were returned by mail to Westat from the participating libraries. All forms were reviewed and analyzed. The questionnaires, entitled "Part II: Data Collection" and the Characteristics Data Forms (Forms 3 and 4) were coded and keypunched in preparation for computer processing. Daily logs (Form 6) and Transaction Journals (Forms 7 and 8) were processed manually.

## **I. Questionnaire**

Questions A through I in the policy section of both the interview and the mail questionnaires (Exhibits B-8 and B-4, Appendix B) were analyzed, coded, and keypunched for computer processing. Coding of the yes/no answers was straightforward. Open-ended questions were analyzed and coding categories were developed. All coding was done on the questionnaires, and cards were keypunched directly from the forms. The card layout form is shown in Exhibit C-1. Data fields were edited manually.

In the machine processing, data cards were read directly by the computer. Straight tabulations were produced for each question in the policy section of the questionnaires. No cross-tabulations were prepared.

The Historical Data Sheets, labeled "Annual Distribution" and "Seasonal Distribution," were processed manually to obtain estimates of the future magnitude of interlibrary loans. The Cost section of the interview questionnaire (the longer form used at the 12 large libraries and their

branches) was also processed manually. The Procedures section of the longer questionnaire was not used for data collection purposes but supplied background material which helped to familiarize the interviewer with the interlibrary loan operation in each library.

## II. Forms 3 and 4 — Characteristics Data Forms

As the completed Characteristics Data Forms (Exhibits B-7A and B-7B, Appendix B) were received at Westat, borrowing and lending forms were counted separately and the tallies recorded. Prior to coding, the forms received from libraries falling in Sampling Stratum 3 were subsampled on the basis of the probability with which each library entered the sample. One-third of the forms from libraries entering the sample with certainty and one-half the forms from libraries coming into the sample with noncertainty were coded. Forms from libraries in Stratum 1 and in Stratum 2 were not subsampled.

The Characteristics Data Forms were designed with most items pre-coded. Codes were determined at Westat for the following:

*classifying the library collecting data*

Region

Public/Private

Type of Library

*classifying the other library involved*

Region

In-state/Out-of-state

*for extra information on Form 3 — Borrower's Form*

Number of Days from initiation of request to receipt of material

Status of User

All coding was done first on the forms and then transferred to coding sheets for keypunching. Each transaction was identified by a library identification code and a transaction number. Card layout forms for the Characteristics Data Forms are shown in Exhibits C-2 and C-3. Data fields were edited manually.

Data were transferred from cards to tape for computer processing. Straight tabulations for each item specified in the card layouts were produced along with counts of the number of borrowing and lending forms processed in each library. Applying this information, sampling weights were determined for each library. These weights were calculated by the

computer and then added to the data tape. A final set of weighted straight tabulations and cross-tabulations were prepared. The card layout of the input data for the weighting process is shown in Exhibit C-4.

### III. Form 6 — Daily Logs

Daily logs (Exhibit B-10, Appendix B) were filled out by employees involved in interlibrary loan activities at each of the 12 large libraries (and their branches) collecting cost data. All forms were reviewed at Westat and processed manually.

A summary of data supplied on the Daily Log sheets was prepared for each library. All employees were categorized either as students or in one of two salary ranges on the basis of annual salary. The salary levels used were: \$4,000–\$6,500; \$6,500 and over. The tally sheets summarized the proportion of time expended by students and at each salary level on various interlibrary loan activities (both borrowing and lending) over the two-week data collection period.

### IV. Forms 7 and 8 — Transaction Journals

Transaction Journals (Exhibits B-11A and B-11B, Appendix B) were used in each of the 12 large libraries (and their branches) gathering cost data. All forms were returned to Westat for review and manual processing.

The data provided on each form were summarized by the major outline categories on Forms 7 and 8. The student category and the permanent employee salary ranges applied in the processing of the Daily Logs were also used here as a personnel classification. Processing of the Transaction Journals produced a summary per transaction of time expended by students and at the two salary levels. Activities listed on the summary data sheets are shown below.

#### **Borrowing**

- I. Making Request
  - a. assistance to patrons
  - b. determining location, verifying
  - c. completing forms, filing
  - d. mailing

#### **Lending**

- I. Receiving
  - a. receiving and verifying
  - b. checking catalog, locating
  - c. searching shelves, pick-up

**Borrowing** (cont'd)

- II. Receiving Item
- III. Payment
- IV. Returning Item
- V. Other

**Lending** (cont'd)

- d. keeping records,  
check-out
- II. Photocopying
- III. Sending
- IV. Follow-up
- V. Returning Items
- VI. Other

For each library, separate summary sheets were prepared for borrowing requests filled, borrowing requests not filled, lending requests filled, and lending requests not filled.

# Sample Design

## Universe

The primary purpose of the study was to provide basic planning data on interlibrary loans from the vantage point of the academic libraries. The desired sampling frame would have been a listing of every academic library in the United States giving pertinent information on each library for purposes of stratification. As in most surveys, the ideal sampling frame was not available and an alternative list was necessary. After investigation the sampling frame was developed from the individual academic institutions reported by the Office of Education in *Library Statistics of Colleges and Universities, Data for Individual Institutions, Fall 1968*, the ARL membership list, and the *American Library Directory*. The Directory was checked to include any large libraries (500,000 volumes or more) which were not on the other two lists.

The list of academic libraries developed from the above sources included a total of approximately 1,850 institutions. In 1968 the Office of Education reported a total of 2,370 academic institutions from which data were obtained on about 1,850 institutions. For this study it was decided to *exclude* the following institutions:

1. institutions outside the conterminous United States (Alaska, Hawaii, Islands and U.S. institutions located in other countries),
2. institutions with total library collection size under 20,000 volumes,

3. institutions reporting no interlibrary loan transactions in the 1968 survey by the Office of Education.

These exclusions resulted in a sampling frame of 1,303 academic institutions.

### Stratification

A decision was made to select a probability sample of 80 institutions for collection of the noncost data and to subsample 12 large institutions from the 80 for the collection of detailed cost data. The sample size of 12 institutions for the cost study was based primarily on economic considerations due to the expense of personal visits to each school.

In the selection of the 80 institutions the following characteristics were taken into account:

1. number of interlibrary loan transactions as indicated in the 1968 statistics for libraries published by the Office of Education,
2. total volumes in collection,
3. geographical location,
4. type of institutional funding, public or private.

The geographical location was accounted for by using the four Census regions, Northeast, North Central, South, and West, as shown in Table 1.

Within each of the four geographical areas the universe of institutions was classified by public and private status into the following strata:

#### Stratum

- 1 institutions with 20,000–99,999 volumes and under 5,000 total transactions,
- 2 institutions with 20,000–99,999 volumes with 5,000 and over total transactions and institutions with 100,000–499,999 volumes,
- 3 institutions with 500,000 and over volumes.

Table 2 shows the total number of institutions in the sampling frame, taking into account the stratification variables.

A further stratification was considered by classifying the libraries according to number of volumes added during the year. Each library was coded into one of three categories of yearly growth.

- 1 — less than five percent addition
- 2 — 5–10 percent addition
- 3 — over 10 percent addition

**TABLE 1 Geographical regions**

<b>Region</b>	<b>1970 population</b>	<b>Census divisions included</b>	<b>States included</b>	
1	48,999,999	New England Middle Atlantic	Maine Vermont Rhode Island New York Pennsylvania	New Hampshire Massachusetts Connecticut New Jersey
2	56,577,067	East North Central West North Central	Ohio Illinois Wisconsin Iowa North Dakota Nebraska	Indiana Michigan Minnesota Missouri South Dakota Kansas
3	62,798,347	South Atlantic East South Central West South Central	Delaware D. C. Georgia Florida Kentucky Alabama Arkansas Oklahoma	Maryland Virginia West Virginia North Carolina South Carolina Tennessee Mississippi Louisiana Texas
4	34,809,339	Mountain Pacific	Montana Wyoming Arizona Utah Washington California	Idaho Colorado New Mexico Nevada Oregon

**TABLE 2 Total number of libraries in sample frame**

<b>Stratum</b>	<b>Regions</b>				<b>Total</b>
	1	2	3	4	
<b>Private</b>					
1	166	197	180	46	589
2	73	64	36	20	193
3	17	7	12	5	41
					<u>823</u>
<b>Public</b>					
1	25	44	103	75	247
2	24	42	65	30	161
3	9	22	23	18	72
					<u>480</u>

**TABLE 3** Aggregate number of volumes

Stratum	Aggregate number of volumes (000's)
<b>Private</b>	
1	31,440
2	35,439
3	61,190
<b>Public</b>	
1	11,854
2	34,680
3	85,557
<b>Total</b>	260,160

After our initial investigation, it was decided this stratification was not very useful and it was not used in the sample design. Consequently the actual selection did not consider the growth rate of the collection size.

### Sample selection of 80 institutions

Given the sampling frame as displayed in Table 2, a sampling method was used which yielded a probability sample of 80 institutions. The assumption was made that of the stratification variables used, the collection size was most closely related to the level of interlibrary loan transactions for any given institution. Consequently it was desirable to allow some of the very largest (in collection size) institutions to come into the sample with certainty, or, expressed in statistical terms, with a probability of one.

Size strata were defined for the remaining institutions and for each stratum the number of institutions was drawn in proportion to the aggregate number of volumes in the collections. Within each stratum the sample institutions were selected with equal probability.

The proportional allocation of institutions over the strata as a function of the aggregate numbers of volumes in each stratum was based on the information shown in Table 3.

The larger institutions were allowed to come into the sample with certainty on the basis of their collection size being equal or greater than

$$V/2n$$

where

$V$  is the total collection size of sample frame  
(260,160,000 volumes)

$n$  is the sample size (80).

In other words, those institutions with collection sizes of 1,626,000 volumes or greater were selected with certainty. A total of 22 institutions qualified.

The next step in the sample selection methodology was to remove the number of volumes represented by the institutions selected with certainty and repeat the procedure for possible additional certainties. Removing the number of volumes represented by the 22 certainty institutions resulted in Table 4.

Again, repeating the check for additional certainty institutions gives

$$V/2n' = 1,651,000$$

where

$V$  is 191,518,000

$n'$  is 58 (total sample size of 80 less 22 certainties).

None of the remaining institutions has a collection of this size; therefore, the sample included only the initial 22 institutions with certainty.

**TABLE 4** Aggregate number of volumes excluding 22 certainty institutions

Stratum	Aggregate number of volumes (000's)
<b>Private</b>	
1	31,440
2	35,439
3	21,489
<b>Public</b>	
1	11,854
2	34,680
3	56,616
<b>Total</b>	191,518

The allocation of the remaining sample of 58 institutions over the strata was done in proportion to the aggregate volumes of each stratum as displayed above in Table 4. The allocation was based on the following formula,

$$n_h = \frac{n' V_h}{\sum V_h},$$

where

$$\begin{aligned}
 n_h & \text{ is the sample size from stratum } h, \\
 V_h & \text{ is the aggregate volumes in stratum } h, \\
 n' & \text{ is the sample size to be selected (58),} \\
 \sum_h V_h & \text{ is the total volumes of all strata.}
 \end{aligned}$$

This allocation yields the optimum allocation for a particular item to be estimated if the coefficient of variation between institutions of the item is the same for the various strata. This is likely to approximate the actual situation for important items to be estimated.

For the application of this formula consider the Private 1 stratum with 31,440,000 volumes as shown in Table 4,

$$n_h = \frac{58 (31,440,000)}{191,518,000} = 10.$$

This result shows that of the remaining 58 institutions to be selected in the sample, 10 of them should come from the Private 1 stratum. Such an approach was applied to each stratum giving the number of sample institutions shown in Table 5 which also includes the 22 institutions selected with certainty.

Within each stratum the number of desired institutions was selected with equal probability. For example, in the case of the Private 1 stratum where a sample of 10 institutions was drawn, each of the 10 was drawn with probability 10/589. This was based on the fact that a total of 589 institutions was contained in that stratum. The mechanics of the actual selection appear on the following page.

**TABLE 5** Number of sample institutions  
by stratum

Stratum	Sample size
<b>Private</b>	
1	10
2	11
3	18
<b>Public</b>	
1	4
2	10
3	27
<b>Total</b>	<b>80</b>

**TABLE 6 Sample of 80 institutions**

Stratum	Regions				Total
	1	2	3	4	
<b>Private</b>					
1	2	4	3	1	10
2	4	4	2	1	11
3	9	3	4	2	18
					<u>39</u>
<b>Public</b>					
1	0	1	2	1	4
2	1	3	4	2	10
3	3	11	7	6	27
					<u>41</u>

1. A computer listing was developed which put the institutions in order of the number of 1968 ILL transactions within each geographical region.
2. A systematic sample was selected by finding the interval  $589/10 = 58.90$ , selecting a random number between zero and 58.90 which in this case was 58.01, indicating the first sample institution was the 59th listing in this stratum, and taking every 58.90th institution through the entire listing for the stratum.

This process was repeated for each stratum.

The final sample displayed by the stratification variables is shown in Table 6. The actual institutions selected in the sample are shown in Appendix E.

### **Subsample of 12 large institutions**

For collection of detailed cost data, a subsample of 12 large lending institutions was desired. The original sample of 80 institutions included 45 institutions with collection sizes in excess of 500,000 volumes. It was decided to subsample the 12 institutions from the original 45. In order to give good geographical representation, three institutions were chosen from each of the four regions of the country. The public/private stratification was not considered in selecting the 12 libraries. In order to give preference to the larger institutions within each region, the aggregate volumes of the universe for each region were split as shown in Table 7.

Of the desired sample of three for each region, two were chosen from

**TABLE 7** Aggregate volumes for regions (number of institutions in universe)

Region	Aggregate volumes of institutions with collection size 500,000–1,999,999	Aggregate volumes of institutions with collection size 2,000,000 and over
1	18,916,000 (19)	28,353,000 (7)
2	18,822,000 (21)	24,453,000 (8)
3	26,977,000 (33)	4,399,000 (2)
4	14,620,000 (20)	10,208,000 (3)

the class in Table 7 having the largest aggregate collection size except for Region 4. For example, in the first region a sample of two was chosen from the class of institutions having collections in excess of 2,000,000 volumes and a sample of one from the remaining institutions in that region. Region 3 was the only geographical region where a sample of two was selected from the class of smaller institutions. Although our preference rule would indicate the selection of two of the smaller institutions in Region 4, it was decided to require the sample to include two of the large California schools.

The procedure used for selecting the specific institutions was as follows:

1. within each geographical region the institutions were separated into the two size classes, 500,000–1,999,999 volumes and over 2,000,000 volumes and the institutions were ranked by collection size within each class,
2. a systematic selection was made by finding the proper sampling interval and drawing a random number for the initial selection.

The individual institutions selected for the subsample are shown in Appendix E.

# Sample Institutions

## SAMPLE OF 80

### Private

Stratum 1	Lesley College (1) *
	Waynesburg College (1)
	Detroit Bible College (2)
	Maryknoll Seminary (2)
	Notre Dame College (2)
	Mt. Mary College (2)
	St. Joseph College (3)
	Jarvis Christian College (3)
	Millsaps College (3)
	Pacific School of Religion (4)
Stratum 2	Washington Jefferson College (1)
	Polytechnic Institute, Brooklyn (1)
	Colgate University (1)
	Tufts University (1)
	Concordia College, Moorhead (2)
	Kalamazoo College (2)
	College of Wooster (2)
	Loyola University (2)

---

\* The geographical regions are shown in parentheses.

Wake Forest University (3)  
Trinity University (3)  
Occidental College (4)

Stratum 3

Boston University (1)  
Brown University (1)  
Princeton University (1)  
University of Pennsylvania (1)  
New York University (1)  
Cornell University (1)  
Columbia University (1)  
Yale University (1)  
Harvard University (1)  
Washington University (2)  
Northwestern University (2)  
University of Chicago (2)  
Catholic University (3)  
Johns Hopkins University (3)  
Duke University (3)  
Tulane University (3)  
Brigham Young University (4)  
Stanford University (4)

**Public**

Stratum 1

Black Hills State College (2)  
Coppin State College (3)  
Alabama A & M College (3)  
Boise State College (4)

Stratum 2

SUNY College, Brockport (1)  
Wisconsin State University, River Falls (2)  
Southeast Missouri State College (2)  
Indiana State University (2)  
Marshall University (3)  
Southeastern Louisiana College (3)  
Lamar State College of Technology (3)  
East Texas State University (3)  
Eastern Washington State College (4)  
Colorado State University (4)

Stratum 3

University of Maine (1)  
University of Connecticut (1)

Pennsylvania State University (1)  
Northern Illinois University (2)  
Iowa State University of Science & Technology (2)  
Michigan State University (2)  
University of Kansas (2)  
University of Missouri (2)  
Ohio State University (2)  
University of Minnesota (2)  
University of Wisconsin (2)  
University of Indiana (2)  
University of Michigan (2)  
University of Illinois (2)  
University of Delaware (3)  
Florida State University (3)  
University of North Carolina at Chapel Hill (3)  
Texas A & M University (3)  
University of Alabama (3)  
University of Kentucky (3)  
University of Texas, Austin (3)  
Utah State University (4)  
University of Idaho (4)  
Arizona State University (4)  
University of Arizona (4)  
University of California at Los Angeles (4)  
University of California at Berkeley (4)

**SUBSAMPLE OF 12**

Brown University (1)  
Princeton University (1)  
Columbia University (1)  
Michigan State University (2)  
University of Minnesota (2)  
University of Chicago (2)  
Texas A & M University (3)  
University of North Carolina at Chapel Hill (3)  
Duke University (3)  
University of Arizona (4)  
University of California at Los Angeles (4)  
Stanford University (4)

# Estimation and Determination of Sample Weights

## **General estimation procedures**

In a sample design which allows units to be selected with different probabilities, it is necessary to weight the results. The sampling weight is the reciprocal of the selection probability, e.g., a unit selected with probability 0.25 has a weight of 4. In general, for estimation of characteristics of the universe, each sample response is assigned the appropriate weight and estimates of totals are constructed by multiplying the reported characteristics by the sampling weight and summing over all responses. Percentages are computed by dividing the weighted sum for a specified characteristic by the total weighted sum.

A problem present in every sample survey is how to handle the non-respondents. Nonresponse occurs because of a variety of reasons such as inability to locate the sample unit, refusal to cooperate, facetious or non-responsive answers. There is no way to account completely accurately for such *nonresponse* because one cannot create response where none exists. One approach is to attribute the same characteristics to the non-respondents as are found for respondents. An alternate approach is to consider only the respondents with no adjustments for nonresponse. The former approach was adopted for this study and the sampling weights were adjusted to account for nonresponse.

## **Sampling weights for sample of 80 institutions**

As was described in Appendix D, the 80 institutions or main libraries were selected with different probabilities depending on the size stratum

**TABLE 1** Sampling weights for main libraries

Stratum	Sample size	Number responding	Population size	Population of selection, $p$	Sampling weight, $1/p$
<b>Private</b>					
1	10	5	589	5/589	117.80
2	11	10	193	10/193	19.30
3 noncertainties	6	5	29	5/29	5.80
3 certainties	12	12	12	12/12	1.00
<b>Public</b>					
1	4	3	247	3/247	82.33
2	10	10	161	10/161	16.10
3 noncertainties	17	16	62	16/62	3.88
3 certainties	10	10	10	10/10	1.00

the library was in. Recall also that the larger libraries having a collection size of 1,626,000 volumes or over were automatically included in the sample. Table 1 gives the sample sizes, number of respondents, number of institutions in universe, probability of selection and sampling weight for each stratum.

The probabilities of selection take into account the nonresponse. The sampling weights shown in the table were applied to the responses in the forecast of future magnitude of interlibrary loans and to the distribution and characteristics data. The application of the weights in the case where percentages are shown is similar to a weighted average. As would be expected, the weight of a library selected with certainty is 1.00. The branch libraries were assigned the same weights as the main libraries to which they were attached.

### **Sampling weights for 12 large libraries used in cost study**

A subsample of 12 institutions with large main libraries was selected from the original sample of 80 institutions for the cost study. The 45 large libraries, the third stratum in the above scale, were distributed according to the four census regions. From each region a sample of three

**TABLE 2 Sampling weights for 12 institutions in cost study**

<b>Institution</b>	<b>Probability of selection in initial sample, <math>p_1</math></b>	<b>Probability of selection in sub-sample, <math>p_2</math></b>	<b>Combined probability <math>p_1 \times p_2</math></b>	<b>Sampling weight</b>
<b>Brown</b>	6/29	1/5	6/145	24.17
<b>Princeton</b>	1	2/7	2/7	3.50
<b>Columbia</b>	1	2/7	2/7	3.50
<b>Michigan State</b>	17/62	1/6	17/372	21.88
<b>Minnesota</b>	1	2/8	2/8	4.00
<b>Chicago</b>	1	2/8	2/8	4.00
<b>Texas A&amp;M</b>	17/62	2/9	34/558	16.41
<b>N. Carolina, Chapel Hill</b>	17/62	2/9	34/558	16.41
<b>Duke</b>	1	1/2	1/2	2.00
<b>Arizona</b>	17/62	1/5	17/310	18.24
<b>UCLA</b>	1	2/3	2/3	1.50
<b>Stanford</b>	1	2/3	2/3	1.50

was chosen. The sampling weights for each of the 12 institutions participating in the cost study are shown in Table 2.

The weights in Table 2 were applied to the figures reported by each of the individual libraries to yield weighted averages and projected totals. In the estimation of totals the application of the weights project the reported figures of the 12 libraries to the universe of 113 large libraries that they are representing. Again the associated branch libraries were assigned the same weight as the main libraries.

### **Estimation of distribution and characteristics of interlibrary loans**

Data were collected from the sample institutions on incoming loan requests and outgoing requests to borrow material. Depending on the size class of the sample library, the data collection period was either two weeks, or four weeks. For estimation purposes it was necessary to make adjustments to account for the differences in the data collection period among the libraries.

The data was adjusted to an annual basis for each library by the application of the following factor:

$$T/t$$

where

$T$  is the reported number of annual requests,  
 $t$  is the number of survey forms completed.

For example, suppose library X completed 100 Lender's Forms (Exhibit B-7B) over a two-week period and reported elsewhere that in the year 1969-70, the library received a total of 1,000 loan requests. An adjustment factor of 10 (1,000/100) was applied, along with the appropriate sampling weight, to each request form.

# Collection Costs

As indicated in the main body of this report, collection costs were not taken into account in arriving at estimated costs of interlibrary loans. While there appears to exist the opinion that some proportion of the collection costs for large lending libraries should be spread over the loans to other institutions, little uniformity exists as to how to arrive at some equitable amount. The purpose of this appendix is to briefly discuss the problem and to present a few thoughts on possible alternative approaches to handling collection costs.

The first step at approaching some means for considering the collection cost is to reach agreement on the cost elements involved. A partial list of costs includes: acquisition, cataloging, check-in, claiming, marking, binding, storage, shelf maintenance, depreciation, and disposition. At one extreme, some argue that no material is acquired, processed, or stored specifically for interlibrary loan service. This line of reasoning would exclude any interlibrary loan charges for collection costs. At the other extreme, a "reasonable" proportion of all collection costs would be allocated to the loan expenses. A more valid answer to this dilemma probably lies somewhere between these two extremes.

Perhaps it is worthwhile to initially formulate the problem in terms of two libraries. Suppose library A spends \$1,000,000 annually on additions to its collection while library B has expenditures of \$300,000 for collection building. The interlibrary loan system should allow library A to recover, on loans to library B, some proportion of the differential expenditures. At the same time, it should be financially beneficial to library B to borrow items from library A rather than purchase them.

Even in these simple terms it is clear that the problem becomes very complex for the entire system of academic libraries. In addition, this example did not treat the amortized value of the already existing collections.

One approach to the problem of determining collection costs (assuming agreement on the cost elements to be included) was offered by Williams et al.<sup>1</sup> in their study of serial publications. The methodology of that study provided a comparison of the costs of purchasing and maintaining a title over its useful life versus satisfying the lifetime demand by borrowing the title.

The proportion of the collection costs to be distributed over the interlibrary loans could be determined in several ways. Probably the simplest method would be to apply the proportion,

$$\frac{\text{Number of interlibrary loans}}{\text{Recorded circulation} + \text{Number of interlibrary loans}}$$

For example, assume a library has 1.5 million recorded circulation and lends 10,000 volumes through interlibrary loan. The proportion, as found in the above formula, would be .006. This would imply that 0.6 percent of the total collection costs should be allocated over the interlibrary loans. To determine the order of magnitude of such an approach, define the collection costs as the amount spent annually on the purchase of books and materials. For a large library, assume the expenditure is one million dollars. Applying the proportion determined in the example yields a figure of \$6,000 in collection costs to be allocated over the 10,000 interlibrary loans. This amounts to a charge of \$0.60 per loan to cover the collection costs. Such an approach does not result in an unreasonable charge.

Another approach might consider the appropriate charges for the lender's collection to be a function of the opportunity cost to a local scholar who is delayed or perhaps prevented from using material that is on loan or being copied for loan. From demand curves for loans and internal use, a model could be constructed that would predict the chance of a volume's being out on interlibrary loan when a local user needs the volume. The number of interlibrary loans causing a local user delay and some value for the delay itself would be estimated. Some libraries may consider this kind of problem in their collection development policies by purchasing multiple copies. Perhaps the most obvious collection ex-

<sup>1</sup> Williams, G.; Bryant E. C.; Wiederkehr, R. R. V.; Palmour, V. E.; and Siehler, C. J. *Library cost models: owning versus borrowing serial publications*. 1968.

penditure which the lender should be able to recover is the additional amount spent on the collection to satisfy interlibrary loan demands.

The discussion here has certainly not settled the problem of how to handle collection costs with regard to interlibrary loans. Hopefully, the simple examples have stimulated the readers' thoughts as to how this problem might be reasonably approached. Future studies must face this problem.

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