

Summaries of Commission-Sponsored Studies

H

REPORT TITLE: Economics of Property Rights as Applied to Computer Software and Data Bases

CONTRACTOR: New York University Economics Department

AUTHORS: Yale M. Braunstein, Dietrich M. Fischer, Janusz A. Ordover, and William J. Baumol

NTIS ORDER NO.: PB 268 787

Background

For the past several years, the New York University Economics Department has conducted a basic investigation of the economics of information. This work, sponsored by the National Science Foundation, has delineated the difference between the peculiar characteristics of information as an economic commodity and the characteristics of ordinary goods and services and has explained why a private market for information products may not function properly. A special area of study has been the transfer of information, in particular through scientific and technical journals. In this report the authors apply their basic research on the economics of information to the production of computer programs.

Conclusions

1. The discipline of economics offers a basis for making analytical statements regarding the pertinence of intellectual property rights in general, and copyrights in particular, to the production of computer software.

2. As the American economy relies increasingly on information products and electronic data processing, the importance of software will grow. Examples suggest that private production in response to incentives may not entirely meet the nation's needs and that some public subsidy may be justified. A failure to develop an ade-

quate policy towards computer software could conceivably have an inhibiting effect on the overall growth of the economy.

3. With proper specifications, and under certain conditions, copyright can provide an effective incentive for the production of computer software. The authors prefer a system of copyright protection to the currently prevailing reliance on trade secrecy on a variety of counts. Trade secrecy, which works better for intermediate than final products, restricts the range of direct users in a way that copyright would not. Trade secrets necessarily inhibit the flow of information about computer programs, thus making it more likely that separate efforts will result in wasteful duplication, making it more difficult for buyers to search out suitable products, and possibly making it more difficult for new firms to go into the programming business. Trade secrecy may also result in the bundling of programs with other services or products as part of an overall package, to the detriment of customers or consumers. Finally, the need to maintain secrecy leads to building certain undesirable qualities into software, such as obscure codes and unnecessary complexity. Copyright is claimed to have superior characteristics in all of the above interests.

4. In general, the New York University economists support broad specification of property rights through the copyright mechanism, so as to allow the copyright owner to exploit as many markets as possible. In this vein, the practice of charging some customers a higher price than others—which sometimes involves an antitrust violation—may have merit if it permits an otherwise unprofitable enterprise to make money and hence be undertaken. The exemption of certain users of copyrighted works, whether through fair use or library or educational provisions, results in an implicit subsidy for those

favored users, a subsidy whose burden is felt partly by other users who are fully subject to the provisions of the copyright law. Economists generally prefer open subsidies borne by the general public through taxes as both more efficient and more equitable.

5. This report specifies a model to estimate the best length of copyright protection to provide maximum benefits for the public but taking into account the need to provide adequate incentives to producers. The length of protection should be greater than the time needed for a producer to recover costs and make a profit, but less than a work's useful lifespan, so that some software will be in the public domain while still useful. The variables employed in the calculations included the average useful lifetime of programs, the possibility of economies of scale in production, the responsiveness of demand to changes in price, the rate of decay of what customers will pay for a given program over time, and the social interest rate. Since the values of these variables were not known definitely, the best length of protection was estimated as falling in the range between two and fourteen years.

6. Any legislature has only two basic considerations in designing a copyright law to provide incentives: the breadth or scope of protection, and its length. Increasing either one increases the opportunity for profit but also imposes a greater cost on the public. There exists a tradeoff between these two dimensions: the more there is of one, the less there needs to be of the other. The Copyright Act of 1976 stands at one extreme, with a very long period of protection but filled with multiple exemptions. However, a quite different system might work for computer software: very short but very tight protection.

REPORT TITLE: Legal Protection of Computer Software—An Industrial Survey
CONTRACTOR: Harbridge House, Inc.
AUTHORS: Richard I. Miller, Clarence O'N. Brown, Francis J. Kelley, Deborah C. Norman, and Michael A. Walker
NTIS ORDER NO.: PB 283 876

Background

In 1973, Harbridge House conducted a small-scale survey of the computer software industry

as part of a more comprehensive project on law and technological innovation sponsored by the National Science Foundation. The survey showed that software firms relied primarily on trade secret licenses and confidential disclosure clauses to secure proprietary products. The respondents saw protection as most significant for general business and financial programs but, as a rule, knew of no instances in which fear of inadequate legal protection had led a company to forego developing an innovative program. The survey sponsored by CONTU updates and expands the work performed in 1973.

The Survey

The primary aim of the survey was to obtain descriptions of firms in the software industry with respect to kinds of products and services offered, size, age, ownership, and amount of investment in research and development. The next set of questions concerned what sort of legal methods had been used to protect proprietary products, what particular products were most in need of protection, how satisfactory the legal methods employed had proved, and in what ways marketing practices might change due to legal revisions.

As in 1973, the Association of Data Processing Service Organizations (ADAPSO) offered its help in the distribution of questionnaires. More than three hundred companies belonging to ADAPSO received questionnaires, of which more than one hundred responded. In addition, ten other companies responded to a shortened form of the questionnaire published in *Computerworld*, a weekly trade newspaper.

Findings

Character of Firms

The typical responding software firm was independently owned, young, and small. Founded within the last ten years, it employed fewer than one hundred people, had annual sales under \$5 million, and spent about \$100,000 a year on research and development. The most common lines of business included consulting, contract programming, developing software packages, and managing data center operations. These firms showed a certain tendency toward specialization in one sort of product or service. A

typical firm developed internally ten to twenty-five computer programs a year and a similar number for specific customers.

Legal Protection

The Harbridge House survey, as tabulated, showed that many of the firms surveyed were not greatly concerned with legal protection of software; many chose not to answer the question on preferred mode of legal protection. Those who did answer displayed a strong preference for contractual restraint through trade secrecy over either patent or copyright. There was a clearly discernible difference, however, in respondents' attitudes with respect to the distinction between general business or financial programs and engineering, scientific, or systems programs. The former were felt to be in some need of protection, the latter were not.

Only a small minority (4 percent) of respondents reported having abandoned the development of a program for lack of protection. The 15 percent who indicated that their marketing practices might change if legal protection improved tended to be larger companies. On the other hand, 76 percent said that the Copyright Act of 1976 would have no effect on their current scheme of marketing, and a mere one percent called for further legal protection.

To a certain degree, then, the 1977 results agree with the 1973 results, particularly in the predominant use of trade secrecy. Many of the respondents in the second survey, however, seemed willing to rely largely on their technological resourcefulness or the uniqueness of their products to maintain their competitive position.

REPORT TITLE: Costs of Owning, Borrowing, and Disposing of Periodical Publications

CONTRACTOR: Public Research Institute, Center for Naval Analyses

AUTHORS: Vernon E. Palmour, Marcia C. Bellassai, and Robert R. V. Wiederkehr

NTIS ORDER NO.: PB 274 821

Background

A library has two ways of satisfying its user's requirements for periodical literature: it may either subscribe and keep issues on the shelf, or

it may borrow from another library. At low levels of usage, it is cheaper for the library to fulfill patron requirements through borrowing; at higher levels of usage, subscribing is cheaper. This study specifies a mathematical model which states exactly the conditions under which each course of action is preferable from the library's own point of view. The work done for CONTU represents an updating of the model originally developed by the same authors for the Association of Research Libraries in 1968.

Specifications of the Model

Library Cost Components Included

Data were collected from three different libraries to estimate the magnitude of the following library costs, which vary depending on subscription decisions: (1) initial costs of acquiring and cataloging a new title; (2) annual recurring costs of maintaining and servicing journal materials; (3) internal costs of circulation, reshelving, and lending to others; and (4) internal cost of processing an interlibrary loan transaction.

The model explicitly does not take into account the loss of browsing capacity due to dropping a subscription or the cost in terms of delay to the patron due to borrowing.

Since the fee, if any, a lending library may charge for the use of its materials—or external borrowing cost—may vary widely from case to case, the model takes this as a variable. The levels of journal use at which libraries should either drop or add subscriptions, called the crossover points, are given for different specified external lending fees. Since lending fees often do not exist or do not cover the lending library's costs, interlibrary loan may be unrealistically cheap from the borrower's point of view, and the crossover points of journal usage from a social point of view would therefore be higher.

Journal Usage over Time and Length of Holdings

Use of journal literature decays rather rapidly. Almost 80 percent of usage occurs within five years after publication, and almost 95 percent within fifteen years. Based on studies at two large libraries, the model includes two schedules—one for science and technology and one for

the social and life sciences—to take this usage pattern into account.

The number of years of back holdings that a library has on the shelves will vary from journal to journal. However, five requests or uses for a journal with five years of back files does not have the same meaning as five requests for a fifteen-year-old title holding. To account for this, the mathematical model includes a “normalization” factor. Since the crossover points are specified for journals with ten years of back holdings, one needs to adjust for the length of a particular journal’s back files before applying the add/drop decision criterion supplied by the crossover point.

Subscription Prices

Since subscription prices vary widely, the model specifies crossover points according to different subscription price levels.

Planning Period

The model uses a twenty-five-year planning period; that is, the library deciding whether to subscribe or borrow is assumed to take into account all costs and user requests up to twenty-five years away but to ignore any years farther in the future.

Conclusions

1. The crossover points are very similar for the decisions both to add a journal title and to drop one. The only difference lies in the library’s one-time cost of acquiring a new title.

2. A typical crossover point for the add/drop decision is four or five uses per journal title per year. This is the result, for example, with a subscription price of forty dollars and external lending fees of eight dollars.

3. It is unlikely, then, that libraries will be engaging in much interlibrary lending activity that falls outside the limits specified by the CONTU guidelines (see Part 1 of this report), which permit each requesting library up to five copies of articles from the most recent five years of each journal title to which it does not subscribe. This is especially true given libraries’ current tendency to maintain subscriptions even at very low levels of usage.

REPORT TITLE: An Analysis of Computer and Photocopying Issues from the Point of View of the General Public and the Ultimate Consumer
CONTRACTOR: Public Interest Economics Center
AUTHORS: Marc Breslow, Allen R. Ferguson, and Larry Haverkamp
NTIS ORDER NO.: PB 283 416

Background

Although numerous studies on the subject of copyright had been performed before CONTU came into existence, apparently none of them focused on the particular question of how changes in the copyright law would affect members of the general public considered as retail consumers. Previous efforts, such as the series of thirty-four studies conducted under the supervision of the Register of Copyrights, largely assumed a legal point of view and did not consider broad economic questions concerning the general public. However, the Commission came to believe that the new technologies whose effect on copyright it was charged to examine might have altered the relationship of the general public to copyright. The ubiquity of the photocopier meant that ordinary citizens could be engaging in potentially infringing acts. Likewise, the latest developments in microcircuitry suggest that widespread use of computers in the home is not too many years away.

In such circumstances it seemed necessary to examine copyright questions from a consumer point of view. The Commission contracted with the Public Interest Economics Center (PIE-C) to provide background and briefing material for two conferences of representatives of nonprofit, public interest-oriented groups, convened by the Public Interest Satellite Association (PISA), a cocontractor. Such conferences seemed the most practical way to learn how proposed or actual changes in the copyright law would affect members of the general public.

Conclusions

Computers

It was PIE-C’s conclusion that small, independent computer software firms need strong legal support for the production of software. Accordingly, the economists recommended that such firms be able to assert both trade secret and copyright interests in their products, de-

pending on the sort of usage and amount of distribution. On the other hand, PIE-C feared that copyright protection for software produced by large manufacturers of computer hardware might reinforce the dominant position of those companies. Besides, large manufacturers already had reason to produce software as a complement to their machinery and did not especially need legal protection. It was thus concluded by PIE-C that only small firms—not large computer hardware manufacturers—should be able to assert copyright in software, without discussing the legal aspect of its proposal.

It was also recommended by PIE-C that data bases in computerized form receive protection. The economists of PIE-C saw no reason why copyright liability should not attach at both the input and output phases of computerized data base use. Such data bases promise to provide important general stores of information, and no consumer interest will be disserved by the dual copyright liability. Similarly, PIE-C decided that no consumer interest would be adversely affected by the provision of copyright protection for works in whose composition or preparation a computer was used as an aid. None of the representatives of the public interest-oriented groups at the PISA conferences voiced serious objections to these conclusions on computer issues.

Photocopying

In summary, PIE-C's basic conclusion was that no one making photocopies of copyright material should have to pay the publisher a copying fee unless the photocopies are resold. These economists found that the overall publishing industry had adequate returns. They were unable to find that photocopying specifically has a deleterious effect on publishing. Hence, they saw no reason why students, teachers, researchers, and librarians should not be able to make essentially unlimited numbers of photocopies for their own noncommercial use. Specifically, PIE-C recommended that any organization that qualifies for tax exemptions under section 501 (c)(3) of the Internal Revenue Code be permitted to do such copyright-exempt internal photocopying as long as the copies are not resold. All of the organizations represented at the PISA conferences would have qualified for

this exemption, and the attending representatives expressed strong support for this particular proposal.

General

There was some disagreement between the PIE-C economists and the PISA conference representatives about how best to define the public interest. The PIE-C economists chose to define the public interest in terms of members of the general public in their roles as retail consumers, while the PISA representatives felt that the sorts of nonprofit organizations for which they worked provided a more concrete embodiment of the public interest. Other unresolved issues concern the importance of competition in copyright industries and the permissibility of transfer of copyright ownership away from the original owner, the author. However, conference representatives believed and PIE-C eventually came to accept that small copyright owners face a relative disadvantage in protecting their copyrights and may need help from the government in this regard, but no specific suggestions were made as to the nature of such assistance.

The PISA Conferences

The conferences of representatives from nonprofit organizations in the public interest community were held on May 2 and June 13, 1977. Bert Cowlan of PISA chaired both sessions, assisted by Andy Horowitz. The authors of the PIE-C report and members of the Commission staff also attended each time. Commissioner Karpatkin and Janusz Ordovery, one of the authors of the New York University report, attended the second meeting. The list of representatives follows:

Dr. Donna Allen
Media Report to Women
Washington, D.C.

Ms. Gertrude Barnstone
Texas Civil Liberties Foundation
Houston, Texas

Dr. Charles E. Bryant
Louis A. Martinet Legal Society
Baton Rouge, Louisiana

Dr. Carl Clark
Monsour Medical Foundation Field Office
Catonsville, Maryland

Ms. Phyllis Cole
Peoples Computer Company
Menlo Park, California

Mr. Louis Hausman
National Council on the Aging
Washington, D.C.

Mr. Wayne Horiuchi
Japanese-American Citizens League
Washington, D.C.

Ms. Marion Hayes Hull
Cable Communications Resource Center
Washington, D.C.

Ms. Katherine Montague
Southwest Research & Information Center
Albuquerque, New Mexico

Ms. Irene Kessel
Consumer Federation of America
Washington, D.C.

Ms. Annie King Phillips
National Association of Neighborhood
Health Centers
Washington, D.C.

Mr. Martin Rogol
National Public Interest Research Groups
Washington, D.C.

Mr. Mark Silbergeld
Consumers Union
Washington, D.C.

Dr. David Horton Smith
Boston College
Chestnut Hill, Massachusetts

Mr. Tom Thomas
National Federation of Community Broadcasters
Washington, D.C.

Ms. Deborah Sanchez Wunderbaum
Commission on Spanish-Speaking Affairs
Lansing, Michigan

Ms. Jan Zimmerman
National Women's Agenda
Santa Monica, California

REPORT TITLE: Survey of Publisher Practices
and Current Attitudes on Authorized Journal
Article Copying and Licensing

CONTRACTOR: Research Center for Library and
Information Science, Graduate Library School,
Indiana University at Bloomington

AUTHORS: Bernard M. Fry, Herbert S. White,
and Elizabeth L. Johnson

NTIS ORDER NO.: PB 271 003

Background

In 1975, the Indiana Graduate Library School completed a large-scale study, sponsored by the National Science Foundation (NSF), on the acquisition of materials by libraries and the economic status of scholarly, scientific, and

technical journals, which depend heavily on libraries as a market. The study involved the analysis of questionnaires filled out by libraries and journal publishers. The libraries surveyed showed a marked shift in their materials budgets from books to periodicals in the period 1969–73. Fry and White have delivered a follow-up survey of libraries to NSF, which shows a continuance in 1974–76 of the earlier trend.¹ As for publishers, subscription levels showed a generally upward trend, but not all publishers were in sound financial condition. While commercial publishers had adequate returns, society publishers had small but positive margins, and many university presses were operating at increasing deficits. It was this part of the original Indiana University study on which the survey by CONTU builds.

The Survey

The survey had a two-fold purpose. First, it aimed to discover the extent to which publishers of U.S. scholarly, scientific, and technical journals currently provide copies of back articles or issues, or else make provision for authorized reproduction, either directly or by means of an agent. Second, the survey attempted to gauge the willingness of publishers to participate in some sort of national clearinghouse mechanism for the authorizing of reproduction and the collection and distribution of fees. A subject of particular interest was the amount of payment that publishers would expect to receive for authorization to make copies.

The Indiana University researchers updated the master list of publishers and journals used in the earlier survey. The final list included almost 1,700 publishers of about 2,500 journals. More than 500 publishers filled out questionnaires covering almost 1,000 journals. The overwhelming majority of these publishers are small: 450 of them publish only one journal. Furthermore, most of the journals are small: more than one-half have fewer than 3,000 subscriptions. While 90 percent of the responding journals had registered for copyright, only 60 percent of the journals which did not respond had registered. The questionnaires were mailed out in February 1977, and the cutoff date for re-

¹ See note 208 in the text.

plies was in May 1977. Thus, the new law was not yet in effect, and plans for the Copyright Clearance Center, Inc. (CCC) were still only in the formulative stage and not widely known. These considerations affect the interpretation of some of the responses.

Findings

Journals and Fees

At the time of the survey, more than one-half of the responding journals sold reprints directly and about one-third through an agent; the two dominant agents used are Xerox University Microfilms and Information Unlimited. A typical charge for a reprint of a ten-page article was five dollars. Journals which did not then sell reprints said they hypothetically would be willing to settle for a lesser fee. Two-thirds of the journals generated less than 6 reprint orders a week; at the other extreme, 13 percent generated 150 or more each week. About one-half of the journals said they filled orders within five days.

One-half of the copyrighted journals expected no royalty payments from any participation in a national clearinghouse. A majority of the remainder would have accepted a fifty-cent payment, but a small minority held out for five dollars or more. As for microform editions, journals preferred to sell them through an agent rather than directly. In addition, they were largely unwilling to permit unrestricted copying from microforms, either of current or back issues. Willingness to permit copying from paper issues was also low, except for copying of back issues by nonprofit organizations. Most publishers not then supplying reprints or photocopies expressed an unwillingness to do so in the future.

Publishers and Services

The results of the survey may be stated also by characterizing publishers rather than journals. Publishers preferred to license reproduction and supply reprints directly as opposed to delegating those functions to a clearinghouse. A large majority of publishers was willing to accept telephone orders, but few saw merit in other modes of telecommunication. Similarly, publishers preferred payment with each order and disliked open or deposit accounts.

The time at which this survey was conducted needs to be considered in assessing the results. Since the plans for CCC were only in the formulation stage and not widely known, the hypothetical questions concerning participation in a clearinghouse had an abstract character, and the responses may not necessarily indicate the level of willingness to participate in CCC or other actual body. In addition, it should be remembered that the bulk of the respondents publish only one journal and do not have a sophisticated knowledge of the workings of copyright. This helps to account for the lack of expectation of revenues from copying fees and fear of organizational encumbrance from a clearinghouse; it may also explain the unreasonably high fees expected by some. Those high expectations may also be interpreted as restating an unwillingness to participate or as reflecting a desire to maintain circulation by making copying very expensive.

REPORT TITLE: Library Photocopying in the United States, with Implications for the Development of a Royalty Payment Mechanism

CONTRACTOR: King Research, Inc.

AUTHORS: Donald W. King and others

NTIS ORDER NO.: PB 278 300 (also available from the Superintendent of Documents, Government Printing Office, No. 052-003-00443-7)

Background

This study was funded and sponsored by three organizations: the National Commission on Libraries and Information Science (NCLIS), the National Science Foundation (NSF), and CONTU. The need for it became apparent when the Working Group of the Conference on Resolution of Copyright Issues found itself unable to agree on the actual volume of library photocopying. The conference, which had been organized in 1974 by the Register of Copyrights and the chairman of NCLIS, agreed in 1975 to participate in drawing up a request for proposals. NCLIS was joined by NSF, and in 1976 the contract was let to Market Facts, Inc. (later King Research, Inc.). Soon thereafter, CONTU added funds to enable a detailed analysis of the transactions of the Minnesota Interlibrary Telecommunications Exchange (MINITEX).

The Survey

The contractor secured from the National Center for Educational Statistics and other sources a master list or sample frame of more than 21,000 libraries in the United States, a list believed to include most of the libraries of any consequence, except for public and private elementary and secondary school libraries, which are considerably more numerous. The libraries were divided into four types: academic, public, federal, and special (the latter frequently but not always serving for-profit organizations). A sample of 360 libraries was drawn so as to fully represent each type. While most of the sample was chosen randomly, a number of the largest libraries were deliberately chosen because of the scale of their photocopying activities. Responding libraries reported only on photocopying done on machines operated or supervised by staff members; unsupervised (including coin-operated) machines were excluded. The libraries in the sample frame had more than thirty-five thousand photocopying machines, of which twenty thousand were used exclusively by the staff.

The numbers found throughout the King

study generally constitute *estimates* based on projections against the nationwide sample frame rather than actual data or observations from which the estimates are extrapolated. The estimates are subject to varying amounts of uncertainty, depending on the number of observations or the length of time in which they were made. Estimates concerning photocopying in one kind of library are therefore often subject to greater uncertainty than estimates concerning all libraries. One of the reasons for adding the MINITEX part of the study was to provide a basis for checking the results of the national library survey, and the results agree quite well.

Findings

The following tables present some of the basic results for the 1976 calendar year. Some totals may not add exactly due to rounding of the numbers. Materials of indeterminate copyright status are not included in the stated totals of numbers of copies made from copyrighted works. The unit of count is a complete document, whether one page or twenty pages.

TABLE H-1
HALF OF COPYING COMES FROM COPYRIGHTED WORKS

Type of Library	No. of Libraries ($\times 1,000$)	Average No. of Copies ($\times 1,000$)	Total No. of Copies (col. 1 \times col. 2) ($\times 1,000,000$)	Percent Copyrighted	No. of Copyrighted Copies (col. 3 \times col. 4) ($\times 1,000,000$)
Public	8.3	7.7	64	37	24
Special	8.5	3.1	26	69	18
Academic	3.0	5.5	17	48	8
Federal	1.4	4.9	7	58	4
U.S. TOTALS	21.3	5.4	114	47	54

The above table shows that for all kinds of materials, about one-half of the copies made came from copyright-protected works. The 114 million copies amounted to about 1 billion pages; copyright status could not be determined in 17 million copies. The next table shows that, for all kinds of libraries throughout the United States, serial publications accounted for most of the copying of copyrighted works.

Due to the unclear interpretation of some of the definitions in section 108 of the new law,

TABLE H-2
MOST COPYING OF COPYRIGHTED WORKS
COMES FROM SERIALS ¹

Type of Materials	No. Copies ($\times 1,000,000$)	Percent Copyrighted	No. Copyrighted Copies (col. 1 \times col. 2) ($\times 1,000,000$)
Serials	48	79	38
Books	15	84	12
Other	51	7	3

and without prejudice to their resolution, King Research, Inc., felt it was necessary to break down copying into three kinds of services: (1) copying for ordinary local users, including employees of organizations served by the library; (2) copying for users at another branch within an overall library system; and (3) copying for interlibrary loan. As the next table shows, for all kinds of libraries and materials, copying for local uses was the dominant activity.

TABLE H-3
MOST COPYING IS FOR LOCAL USERS ¹

Kind of Service	No. Copies ($\times 1,000,000$)	Percent Copy- righted	No. Copy- righted Copies (col. 1 \times col. 2) ($\times 1,000,000$)
Local	76	41	31
Intrasystem	27	47	17
Interlibrary loan	11	50	6

¹ Cf. King study, pp. 45, 47, 49. The table on p. 47 has two typographical errors in the "All Libraries" row in the sixth and tenth columns.

An area of particular interest was that of copying from copyrighted serials for interlibrary loan. The King study revealed that the CONTU guidelines, in combination with provisions of the copyright law itself, greatly reduced the number of such copies needing authorization. There were 3.8 million such copies made in 1976, a number reduced to 2.4 million if one excludes copies made from serials over five years old. The exemptions for replacement of damaged or missing items and for classroom use further reduce the number to 2 million. After applying the CONTU guidelines, which permit up to five copies per serial title for each requesting library in a given year, there are

500,000 remaining copies needing authorization. The status of material over five years old remains unclear, however, making this estimate a lower limit.

The distribution of copying, by size of library, was quite uneven. Large libraries dominated; in particular, 20 percent of all libraries accounted for almost 80 percent of copies made for local users and almost 75 percent of those made for interlibrary loan. Indeed, since the number of supervised machines in the libraries surveyed was smaller than the number of libraries themselves, some must have had no supervised machines at all.

The distribution of copying was also uneven with respect to source materials, especially serials. Although copying from journals seemed to bear little or no relation to circulation levels, 20 percent of them accounted for almost 70 percent of copies made for local use and over 85 percent made for interlibrary loan. If all the exemptions for interlibrary loans were applied, 90 percent of serial titles would have fifty or fewer copies made needing authorization from them throughout the country. Very few, if any, would have one hundred or more such copies.

In addition to counting photocopies and estimating totals, the King study also questioned libraries about their preferences regarding the design of a mechanism to collect and distribute royalties for photocopies needing authorization under the copyright law. Describing the choice to be made between a system of complete reporting of copying activity at one end and a system of minimum reporting at the other, the report noted that greater accuracy in collection and distribution of payments would require a more complex and costly system. Librarians seemed to prefer a simpler system which, although less exact in its payments, would be easier to administer.