This article applies break-even analysis to determine what magnitude of titles added per year (for which a proof slip will be used in producing card sets) is sufficient to utilize economically Library of Congress proof slips and a Xerox 914 copying machine in the cataloging operation of a library. A break-even formula is derived, and an example of its use is given using data gathered at Arkansas State University.

This article aims to derive a formula which will determine the economic break-even point for the use of Library of Congress proof slips and a Xerox 914 copying machine in the cataloging operation of a library. An example of the use of this formula will be given using statistics gathered from the cataloging department of the Arkansas State University library.

As the numerous uses of LC proof slips in libraries have been elucidated in an article authored by Samuel Waters and Salvatore Costabile, this article will focus upon the uses of proof slips only as they pertain to the production of catalog cards. Derivation of the formula will not reflect the fact that most libraries using a Xerox 914 to reproduce catalog cards defray their rental costs through much more extensive use of the machine than through mere reproduction of catalog cards from proof slips; on the contrary, it will be assumed that the reproduction of catalog cards from proof slips must defray the entire cost of the Xerox 914. This assumption will, of course, necessitate a very conservative break-even point figure, and any library using the formula to determine whether or not to use proof slips should bear this in mind. One other advantage of proof slips which this formula does not account for is the time savings accrued. The economic advantage of having immediate access to proof slips over delaying cataloging while cards are ordered from the Library of Congress is very difficult to assess quantitatively, and is therefore not included in this analysis.

There are three constants and two variables which comprise this equation. The constants are defined as the cost of LC card sets, the cost of Xeroxing a complete set of cards, and the cost of a proof slip subscription. The variables are the cost of student filing per year and the number of titles ordered per year. While the latter is clearly a variable dependent upon the individual library, the student filing cost varies only

---


Mr. Anderson was head cataloger, Arkansas State University library at the time this article was written. He is now director, First Regional Library, Hernando, Mississippi.
as the types of arrangement, types of
titles needed, and depth of proof slip 
file vary.

The break-even point is derived when
the cost of using proof slips in the cata­
loging process equals the cost of order­
ing Library of Congress cards for each 
title. Represented symbolically, this is 
defined as

\[ ax = bx + c + d \]

where:
\[
\begin{align*}
  a &= \text{cost of LC cards/set}, \\
  b &= \text{Xerox cost for one set of cards}, \\
  c &= \text{cost of proof slip subscription/year}, \\
  d &= \text{cost of student filing/year}, \\
  x &= \text{number of titles added per year}. 
\end{align*}
\]

When \((bx)\) is subtracted from both 
sides of the equation, the formula be­
comes:

\[ ax - bx = c + d, \text{ or } x (a - b) = c + d \]

The variable \((x)\) can then be isolated 
by dividing both sides of the equation 
by \((a - b)\):

\[ x = \frac{c + d}{a - b} \]

Therefore, when the number of titles 
which would have a proof slip avail­
able is greater than the quantity \(\frac{c + d}{a - b}\),
it would be more economical to use 
proof slips rather than order LC card 
sets for each title received.

In order to suggest how this formula 
might be applied in a library, and to 
furnish statistics which other libraries 
might use in computing their fixed and 
variable costs for a proof slip operation 
of this type, an actual example is pre­
sented in the following section. It is al­
so hoped that this example will help 
clarify the usefulness of cost figures.

When Arkansas State University de­
cided in 1967 to begin a subscription to 
Library of Congress proof slips, it was 
agreed that the basic need, as far as cata­
loging was concerned, was for current 
imprints in the English language. Ac­
ccordingly, the procedure for handling 
proof slips was geared toward maintain­
ing a three-year file of proof slips of 
titles in the English language. This 
meant that upon receiving the weekly 
box of proof slips from the Library of 
Congress, all slips for books with a 
copyright date older than three years, 
as well as those for foreign language 
books, were discarded. The remaining 
slips were alphabetized by main entry 
and filed in the appropriate section of 
the catalog for the particular year in 
which the book was copyrighted. At the 
beginning of each new year, the oldest 
section was discarded, thus maintain­
ing the three-year file. We found that a 
three-year file of English language 
proof slips could easily be housed in 
two sixty-tray catalogs.

Over a one-year period, the number 
of hours spent each day sorting, alpha­
etizing, and filing proof slips were to­
taled by the filers in the cataloging de­
partment. These statistics totaled ap­
proximately 485 hours. This figure, mul­
tiplied by the hourly wage rate for stu­
dent workers, $1.60, yielded the figure 
$776, and accounts for variable “d” in 
the equation. The other fixed cost is 
quantity “c” in the formula, which is 
the yearly cost of a subscription to the 
proof slips. This cost, which is subject 
to change every year, was $385 last year.

The two variable costs (costs that 
vary according to the number of books 
cataloged) are the cost of LC card sets 
and the cost of Xeroxing a card set 
from a proof slip. The cost of an LC 
card set was $.35. The cost of Xeroxing 
a card set was obtained by adding the 
average rental cost per card of a Xerox 
914 ($0.01) to the average cost per card 
of card stock ($0.005), yielding a total of 
$.015 per card. The operator time for 
the Xerox 914 is not figured into this to­
tal, because it is assumed that this time 
is offset by the time saved by typing the 
call number on the proof slip to be
Xeroxed, thereby eliminating the necessity of typing the call number on each card in the complete set. Multiplying this figure by five, which is the average number of cards per set, we produced quantity “b” in the equation, a figure of $.075.

When these figures are substituted into the original equation:

\[ x = \frac{385 + 776}{0.35 - 0.075} \]

or

\[ x = 4222 \]

The reader should bear in mind that this figure is not the total number of titles which must be added each year in order to realize the economies of a proof slip subscription, but rather the total number of titles for which a proof slip must be used to produce card sets.

It is the opinion of the author that a break-even analysis such as the one described in this article can be a very useful tool to librarians. Aside from the many other uses of proof slips, a medium-sized library can realize a definite savings in processing costs by utilizing a proof slip subscription and a Xerox 914 copier instead of ordering card sets from the Library of Congress.