Journal selection is very crucial point in the net environment and in limited budget in any library and information centre. This article emphasises on limited budget and tries to find solution of the problem in journal selection by using the Theory of Marginal Utility. Also discussed here is how Bradford's Law is effective for cost analysis and journal selection. This alternative approach tries to find out the solution for best selection and optimum utility of the budget.

INTRODUCTION

Presently in any library or information centre, journal selection is a very challenging factor. There are several reasons which include

a) enormous number of publications
b) tremendous expansion of Internet subscription
c) increased cost of journals, and
d) limited budget

While considering these four factors, librarians have a vital role to select the most useful journals so that maximum utility subject to the budget constraint is achieved. Here will be discussed the last aspect, i.e. how a librarian can enjoy the maximum utility by selecting those journals with limited budget.

BUDGET CONSTRAINTS

Let us consider a librarian who has a fixed amount (I) that can be spent on two journals (say) out of n number of journals. Let $P_x$ be the unit cost of journal-1 (for example JASIS) and $P_y$ be the unit cost of journal-2 (for example Information Science). So the librarian has to pay his all allotment for journals on these two journals. So budget constraints will be-

$$ I = P_x + P_y $$

Now question is how he will select these two journal out of n number of journals for his institution. Here comes the question of utility of these two journals.

ECONOMIC CONCEPT OF UTILITY AND SATISFACTION

Utility is the level of satisfaction that a person gets from consuming goods or services. If buying two journals for example JASIS and Information Science makes his users happier than purchasing some other five journals, which are very less used and less qualitative journals, then we can say that utility of those two journals is more than the other five.
But in case of information, i.e., information contained in these two journals, we do not use information about choice to tell us how much these two journals are preferred to others. Here we can use the ordinal property of the utility function. The utility function can be represented by a series of indifference curves.

**MARGINAL UTILITY ANALYSIS OF USERS’ CHOICE**

Marginal utility (MU) is the gain in utility or satisfaction from consuming an additional unit of goods or services. Economists often use the term marginal utility when discussing the extra benefit that consumers receive from additional goods and services even though they realize that it would be very difficult to measure it. Mathematically, it can be explained as:

Let removing $\Delta Q_y$ unit of Y (say Money) makes librarian worse off. The loss in utility is $-\Delta Q_y, MU_y$. Where $\Delta Q_y$ = Marginal Utility of Y, replace this lost Y with just enough X (JASIS or Information Science or any other journal. Here each journal represents one unit of X) added to the gain in utility would be $\Delta Q_x, MU_x$, Where MU is the Marginal Utility of the added X.

Thus, $-\Delta Q_y, MU_y = \Delta Q_x, MU_x$

Or,

$$-\frac{\Delta Q_y}{\Delta Q_x} = \frac{MU_y}{MU_x} = -MRS_{xy}$$

$MRS_{xy}$ is the Marginal Rate of Substitution. At equilibrium

$$\frac{MU_x}{MU_y} = MRS_{xy} = \frac{P_x}{P_y}$$

Or,

$$\frac{MU_x}{P_x} = \frac{MU_y}{P_y}$$

So, MU of a journal can be considered as change in productivity/ unit change in cost. If the librarian wants to purchase plenty of journals which give maximum utility for his expenditure, he must consider the quantities such that the MU of each journal is within a certain acceptable level.

**Measurement of MU**

Though it is difficult to measure the MU specially in case of information but it is assumed that each journal is a unit quantity and it must follow the principle of decreasing Marginal Utility. That means when number of journals (not the quantity of same journal but the quantity of different journal of same subject) purchased increase, their utility will decrease at increasing rate. Same as MU of one Rupee is very less to a rich man when compared to its utility to a poor man.

Now question is which journal a librarian will select for purchase which gives maximum MU? This is a very sensitive issue. To find the maximum utility, one can follow the following methods.

(i) **By User demands**

This is the most popular way to measure the utility of journals. Here, an efficient librarian collects the data about which journals are issued the most. Though all issued journals may not be read by users every time, that is a different issue. Now if librarian subscribes another journal then what will be the reduction of use of the previous journal should be equal to the increase of use of new journal and that may be used as MU of that new journal. This follows the diminishing MRS for the previous journal.

At the same time, for this new subscription, if aggregate number of users or aggregate number of use of all journals increase then we can definitely say that MU has increased and we can continue subscription for the following years also, of course subject to the budget constraints.
(ii) By selecting those journals which contain maximum number of articles. But this method has another problem that articles may not be qualitative.

(iii) By selecting those journals which are highly qualitative. Here problem is that the number of articles may be very less. And how to measure the quality of an article is another issue.

**COST ANALYSIS AND JOURNAL SELECTION**

Following Bradford’s Law, selection of the core periodicals can be carried out. Let number of periodical in a core group be five for Library Science Journals. Assume that core group contains $5 \times 5 = 25$ articles on an average. Also assume that cost of these five journals is $1000 \times 5 = Rs. 5000/-$.

By assuming Bradford’s multiplier $n=2$, we can calculate the next group of journals which will contain another 25 articles. The number of journals in second rank core group are 15. We can calculate by using the formula $S_k = (n^k - 1)^0$ from Vickery’s interpretation of Bradford’s graphical and verbal statement (1948), where $k = 1, 2, 3, ..., s=S/n; 1$ and $S =$ Cumulated journals in the first $k$ group in a function of the nucleus of periodical for a given $n$ and $k$. In our case we assumed it to be 5. The cost of these 15 journals is $1000 \times 15 = Rs. 15000/-$.

We can go to find next, i.e., third group and by calculating we will find that 35 journals in third core group will contain 25 articles. We can easily say that at least $35 - 25 = 10$ journals in this third group are fully nonproductive. Because 10 journals in this group will not contain good articles. Therefore although the budget is affordable, still we will not go for this third group of journals. Thus our selection will be restricted upto second group of journals which gives the maximum utility of given budget.

**MU AND INDIFFERENCE ANALYSIS**

An indifference curve in economics shows the trade off between two commodities. In our case also we explain MU of a journal to a user in such a way that, for example a user will sacrifice two articles of journal $X$ to gain one article of journal $Y$. This type of trade off between utility of two journals is called the comparing utilities and can be represented as convex shape indifference curve. A librarian can select one journal from two different group of journals like primary journals or review literatures.

<table>
<thead>
<tr>
<th>Group</th>
<th>No. of Journals</th>
<th>No. of Articles</th>
<th>Cost (Rs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>5</td>
<td>25</td>
<td>5000</td>
</tr>
<tr>
<td>2</td>
<td>15</td>
<td>25</td>
<td>15000</td>
</tr>
<tr>
<td>3</td>
<td>35</td>
<td>25</td>
<td>35000</td>
</tr>
</tbody>
</table>

(This table is made purely on the basis of assumption discussed above.)
CONCLUSION

It can be concluded that adoption of MU, indifference curve analysis, and the cost-effectiveness analysis helps to conceive the overall utility of journals. An efficient librarian can follow these mechanisms for journal selection with improved utility, reduced cost of acquisition and overall improvement of services. Thus MU contributes to the study of information economics which the information scientist contemplates an essential component of information science.

REFERENCES

1. HYMAN (Devid N). Modern microeconomics. 1986; St. Louis; Times Mirror. 88-100p.