Kellogg School of Management
Northwestern University

The BookBinders Book Club: Basic Customer Analysis

BOOK CLUBS

Historically, book clubs offered their readers continuity and negative option programs that were based on an extended contractual relationship between the club and its clients. Under a continuity program, a reader signs up for an offer of several books for a few dollars each (plus shipping and handling), and an agreement to receive a shipment of one or two books each month thereafter. This is a "low maintenance" arrangement since a single contract guarantees a sequence of sales. It is most common for children's books, where parents are willing to delegate the rights to make a selection to the book club, and in fact much of the club's prestige depends on the quality of its selection. In a "negative option" program, readers get to choose which and how many additional books they would receive, but the default option is that the club's selection will be delivered to them each month. The club informs them of the monthly selection and they are specifically required to mark "no" by a deadline date on their order form if they do not want to receive it. Negative option programs sometimes result in customer dissatisfaction and always give rise to significant mailing and processing costs.

In an attempt to reverse these trends and combat the success of superstores and online retailers, some firms are beginning to offer books on a positive option basis, but only to selected segments of their customer lists that are deemed receptive to specific offers. Thus, book clubs are beginning to use customer analytics to work smarter rather than expand the coverage of their mailings. They target individual customers based on data in their databases to select only customers who are likely to be interested in their offers, and they differentiate their offers across their customer population.

THE "BOOKBINDERS BOOK CLUB" - BBB

The BBB Club was established for the purpose of selling specialty books through direct marketing involving a variety of channels, including media advertising (TV, magazines, newspapers) and mailing. BBB is strictly a distributor and does not publish any of the books it

This case was originally prepared by Nissan Levin and Jacob Zahavi, Faculty of Management, Tel Aviv University and subsequently modified by Professor Charlotte Mason and Melissa Martin of the University of North Carolina. The case was further modified by Florian Zettelmeyer for use in his course and for use with R instead of SPSS. This case was developed to provide material for class discussion rather than to illustrate either effective or ineffective handling of a business situation. Names and data may have been disguised to assure confidentiality.

sells. In anticipation of using database marketing, BBB made a strategic decision right from the start to build and maintain a detailed database about its club members containing all the relevant information about their customers. Readers fill out an insert that is returned to BBB which then enters the customer into the database. By now the company has built a database of 500,000 readers through advertising in specialty magazines.

Initially, and as long as the customers' database was still relatively small, BBB contacted all its club members with each appeal to purchase books. Every other month, the company sent out solo mailings for its latest offering (that is, each offer is for one book). BBB's sales have grown steadily, but profits began falling when the database got larger and when the company diversified its book selection and increased the number of offers sent to customers. The falling profits have led BBB to switch to customer analytics in order improve its mailing yields and stay profitable. BBB's management has decided to base customer analytics on the following principles:

- New members would be acquired by advertising in specialty magazines, newspapers, TV.
- Existing club members would be contacted by direct mail and telemarketing.
- The mailing / telemarketing list would be chosen using database marketing technology.
- Customer response, whether purchase or no purchase, will be recorded and maintained in the database, to be used in future targeting of audiences for promotion (in fact, the management considers this database as the main asset of the company).
- Every new book would be offered to the club members first - prior to advertising it in the media.
- The price in media advertising would always be higher than the one in the direct mailing/telemarketing offer.
- Live market tests, involving a random sample of customers from the database, would be conducted for new book editions in order to analyze customers' response and calibrate a response model for the current book offering. The response model's results will then be used to "score" customers in the database and select customers for the mailing campaign.

The idea is to run simultaneous targeted campaigns where each target audience will receive appropriate solo mailings.

Parallel to selling books, BBB management has also been taking advantage of its database to offer its members non-book products. Based on the success that the company had in the past with the non-book operation, it plans to continue this operation, even expand it, in the future.

THE DECISION PROCESS

Two core decisions are usually supported by customer analytics: targeting and prediction. Targeting is concerned with selecting the audience that is most receptive to the current offering. Prediction is concerned with forecasting the number of orders generated. The decision process usually consists of several steps:

- Testing
- Response modeling

- Scoring
- Decision making

The process starts with a TEST mailing, where a sample of customers are selected randomly from the database and mailed the new offer.

The responses to the offer are then analyzed along with customers' past purchase history, demographics and other relevant data to determine how the response varies as a function of the customers' attributes and history. Purchase history includes variables such as: how recently they have purchased ("Recency"), how often they have purchased ("Frequency"), and how much money they have spent on buying the company's products in the past ("Monetary") (the so-called RFM variables). Other pieces of purchase history are the number of books bought by various categories, and whether or not a customer has bought specific related products in the past. The resulting model is referred to as a Response model.

The response model calibrated on the basis of the TEST results is next used to assign a "score" for each customer in the balance of the list (i.e., for customers who were not part of the TEST mailing, which constitute the majority of the list), reflecting the customers' "likelihood" of purchasing the current product offering.

Finally, customers are selected for the promotion based on their expected likelihood of purchase, the revenue generated by a sale, and the cost of mailing the offer. The final mailing is referred to as the ROLL mailing.

Exhibit 1

The BookBinders Book Club
R Dataset

Summary information about the BookBinders Book Club's customers' purchasing history and demographics is in the R dataset called *bbb.Rdata*

Below is a listing of the variable names and descriptions of the data types:

The contents of bbb.Rdata is one data frame "bbb" which contains records for 50,000 customers			
Variable name	Type	Size	Description
acctnum	Numeric	5	Customer account number
gender	String	1	Customer gender – M=male, F=female
state	String	2	State where customer lives (2-character abbreviation)
zip	String	5	ZIP code (5-digit)
zip3	String	3	First 3 digits of ZIP code
first	Numeric	3	Number of months since first purchase
last	Numeric	3	Number of months since most recent purchase
book	Numeric	8	Total dollars spent on books
nonbook	Numeric	8	Total dollars spent on non-book products
total	Numeric	8	Total dollars spent
purch	Numeric	5	Total number of books purchased
child	Numeric	5	Total number of children's books purchased
youth	Numeric	5	Total number of youth books purchased
cook	Numeric	5	Total number of cook books purchased
do_it	Numeric	5	Total number of do-it-yourself books purchased
reference	Numeric	5	Total number of reference books purchased
art	Numeric	5	Total number of art books purchased
geog	Numeric	5	Total number of geography books purchased
buyer	Numeric	1	Did the customer buy "The Art History of Florence?" (1=yes, 0=no)
training	Numeric	1	Dummy variable that splits the dataset into a training ("1") and validation ("0") dataset. This variable is used only later in the course.

YOUR TASK

Your task is to 'get to know' the data by conducting some statistical analysis using BBB's customer database. Summary information about the BookBinders Book Club's customers' purchasing history and demographics is in the R dataset called *bbb.Rdata*.
Exhibit 1 (see above) contains a listing of the variable names and descriptions of the data types that you should use to answer the following questions.

Your assignment is to submit an R Notebook in HTML and in pdf format (see the last section of the R tutorial "R_Kellogg_Tutorial_mktg482.pdf" for how to do that.)

All the assignment questions are contained in the R Notebook "basic_bbb_assignment.Rmd".