

A review of conjoint studies and its application in the two diversified product markets: Canned Coffee and HIV Vaccine

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Abstract: Consumers are important to any business enterprise as they are the only one who appreciates their product and services by means of consuming them in exchange of cash. Thus for the survival, growth and expansion of any business unit this exchange is of great importance. The biggest problem in this buying-exchange cycle is that the competition. More and more companies enter in to the market and take the share thus reducing the share per competitor. The market share is depending up on the consumer preference. The companies will focus on what their consumers prefer. Those companies who are capable of managing in knowing all this will definitely achieve their desired market share. Thus there is an ardent need to have a market research on the consumer so that the market share would be encouraging. The Paul E. Green is the one who had major contributions in unleashing the potential of conjoint analysis to obtain the consumers preference and utility. It is extremely useful in understanding the preference of the consumers. The preference model is obtained which is capable of giving sufficient level of insight marketers to create the profitable products. The aim of this research paper is to increase the awareness of the application of Conjoint Analysis in the field of Consumer Research among academicians and marketers. We have reviewed some of the recent studies that were based on the Conjoint Analysis. The choice of the studies that is reviewed here are also of great importance as the one belongs to Coffee Product and the other study is related to the HIV Vaccine product development, the two product market are diversified in nature.

Key Words: Conjoint analysis, new product development, attributes, part-worth utilities, preference, coffee, HIV vaccine

1. INTRODUCTION

In consumer research the center of focus is the consumers' preference for decision alternatives. The alternatives are the attributes of the products. Conjoint Analysis (CA) and discrete choice experimentation (DCE) are tools developed since 1960 for understanding how individuals develop preferences for alternatives. (Raghavarao, Wiley, & Chitturi, 2011)

The Conjoint Analysis had got its major contributions from Paul E. Green 1970 onwards. To get a grasp of the concept one must refer the (Wind & Green, 1975)

The Conjoint Analysis as per (Green & Srinivasan, 1978) is a technique to analyze the consumer's preference for the attributes in a particular product. A product is an outcome of combination of various attributes thus knowing what are the important attributes to its consumers will enable its makers to decide the final product. The individual attributes have different levels. A level is like variations of the particular attribute. Such Combinations of Attribute-Level that describe the detailed specification of the product.

The conjoint analysis has different methods to suit the different research purposes. As there are various conjoint methods namely Rating Based Conjoint Analysis, Choice Based Conjoined Analysis (CBC) and Adaptive Conjoint Analysis (ACA). (Orme, 2009). The popular among research scholars is the first method that is *Rating Based Conjoint Analysis* as it comes pre-installed by default in the SPSS.

There are 1000's of conjoint studies has been carried out every year. For beginners to obtain insight in the application of conjoint analysis in consumer research it is important to go through critical reviews of if not all but few studies before one could plan to use this for its research project. Reviewing all the projects is practically not feasible, but few studies can be reviewed to get the insight in the concept.

Conjoint Analysis has wide range of applications in consumer research (Green & Srinivasan, 1978), like we are about to discuss the two conjoint studies at hand to explain its application for product development, benchmarking (FMCG), Efficacy & acceptability (Medicine) of the various product concepts (mix of hypothetical and real) and all these have been computed not only for one but also for different sample groups to know as one-size-fit to all is possible or not. In other words what product variant appeals to one group may or may not appeal the other group.

At several places in this article the most important sections of the studies have been highlighted to draw the attention of the interested audience, so that such critical concepts should not go unnoticed while actually referring the conjoint studies when referred in isolation.

2. REVIEW OF LITERATURE:

Green & Srinivasan, Conjoint Analysis in Consumer Research: Issues and Outlook, 1978 has given a review of conjoint analysis, its administration, various preference model was briefed with their formulation as well as the data collection full profile method. It tells what are all the avenues in the marketing where the conjoint plays significant role in shaping the market and product strategies.

Shih, et al., 2008 had conducted a study **Conjoint Analysis: A Study of Canned Coffee in Taiwan** which aims at finding the optimal combinations of the various canned coffee attributes that suits to the population that are divided in the large geographical area. It also tells us that the conjoint is helpful in setting reference for marketing strategies and this can be utilized by other manufacturers of other products too. The strategist can take the benefit from this study.

Lee, et al., 2012 had conducted a study **Use of conjoint analysis to assess HIV vaccine acceptability: feasibility of an innovation in the assessment of consumer health-care preferences**, which aims at testing the feasibility of using conjoint analysis to find the acceptability of the HIV vaccine among different population groups based on racial and regional. This study is of great importance as it shows how conjoint is useful in practical for formulating the vaccine type products in the medical product markets. The HIV infection can be prevented from spreading if the particular vulnerable target consumers population can accept these vaccines with ease.

3. OBJECTIVES OF THE STUDY:

- To find the various application of the Conjoint Analysis in consumer research.
- To emphasis on the conjoint analysis execution in accordance with the purpose of the conjoint study.

4. PROPOSED METHODOLOGY:

The two studies, which we have taken for discussion in this paper to explain the application of the conjoint Analysis, will be reviewed one by one. The First study to begin with is "**Conjoint Analysis: A Study of Canned Coffee in Taiwan**" it is followed by the "**Use of conjoint analysis to assess HIV vaccine acceptability: feasibility of an innovation in the assessment of consumer health-care preferences**"

The Conjoint studies are reviewed based on the following aspects:-

- Purpose of the conjoint study
- The attributes and their levels
- Conjoint Analysis Method and its execution
- An outcome

5. CONJOINT ANALYSIS APPLICATION IN CANNED COFFEE PRODUCT DEVELOPMENT:

The instant coffee market in Taiwan was attracting more and more franchised chains, the popular ones were Star Bucks, Yes Coffee, Danty Coffee and Seattle Coffee. The research team identified the need of the study to explore consumer preference for canned coffee attributes to get the optimal combination of the product and this will set the stage for the marketers to set their Marketing Strategies.

The key input is essential to draft the marketing strategy is that what would be the more preferred coffee product attributes? What consumers look for in the coffee product that they purchased? Any specific attribute(s) that determine the selection then rest of the attributes of the coffee product? How they get influenced while purchasing?

"The purpose of this study is (1) to determine the characteristics and priority of consumer preference structures; (2) to segment the various preference structures and characteristics of demographic variables of consumer's groups; and (3) to determine attributes combination of preferred instant coffees for various structural consumer groups as reference for manufacturer's marketing segmentation of the instant coffees." (Shih, et al., 2008, p. 238)

To achieve the above objectives the researchers first have to decide the attributes. The attributes could have had been many that consumers consider while purchasing the Coffee product. Not all the attributes are possible to include in the conjoint study thus a prelim survey is required to assess the factors of purchase. Thus the research team has referred the secondary data obtained from the year Book 2003 of ICT (integrated Consumer Tendency) Marketing. This gives them the top five key factors of purchase that a consumers follows while purchasing the Instant coffee product. These are:- "Taste/Flavor", "Name of Brand", "Price", "Package" and "Content Vol.". Each attribute has levels, some has two levels and rest have the three levels, like the attribute Brand has four, Package has three, Flavor has four, Content Volume has two, and price has three levels. The Data is collected was based in the "Full Concept

Method” with the help of SPSS which comes out as $4 \times 3 \times 4 \times 2 \times 3 = 288$, this means there are 288 stimuli's or coffee product are possible after combinations of these five attributes and respective levels. Applying “Fractional Factorial design” the number of test items will reduced from 288 to 16.

The Conjoint Analytical model can be represented from (Shih, et al., 2008, pp. 240-242) the output of the analysis will yield the following outputs: - Part-worthy utilities, relative importance of each attributes. The above output is can be obtained separate for the separate zone, like North, Central and Southern. Thus the most preferred attribute combinations can be obtained; the outcome can be of great help in deciding the each attribute while formulating the complete product (Instant Coffee product in this study).

Another outcome is in the form of the ranking of the all the test items (stimuli), this can be deduced by summing up the compositional effect (part-worth utilities) obtained as SPSS output and then ranked. The interesting fact that came out of this study was that the one regions preference model is quite different from the other regions preference model. The outcome has identified the coffee marketers to identify and clearly define the market segments. Moreover they can also decide the product attributes to get the acceptance in the targeted market. The price attribute which is actually not a product feature has the maximum dominance in the product preference by the coffee product consumers.

6. CONJOINT ANALYSIS APPLICATION IN HIV VACCINE ACCEPTABILITY:

In another conjoint study we will see that the conjoint analysis was applied to judge the acceptability of the HIV vaccine (Lee, et al., 2012). This study made emphasis on that the importance of knowing the acceptability of its targeted audience through the preclinical and clinical trial stages. The intended users of it would face the challenge to select it among the various new products. Moreover, the dissemination of such preventive vaccines is of great importance in the region where high risk of HIV is expected. In addition to this the different ethnical and racially diverse populations also differ in health-care preference thus knowing this aspect is equally important then just acceptability.

In addition to the above purpose this study has addressed another issue that it tested the feasibility of using the conjoint analysis in medicinal area too. The common notion about the conjoint analysis is that technique where it is primarily used in the marketing (Green & Srinivasan, 1990).

For conjoint analysis to run the researchers has to have the attributes selected for which they felt that the prospective buyers will have more concerns and thus they can give their preference easily. In this study the attributes were 7 in numbers and each one of them have 2 levels. Thus the full factorial design resulted in total numbers of profiles = $2^7 = 128$, but by reducing through fractional factorial design the profiles remain 8 in numbers.

The study, however differ in its administration as compared to other conjoint studies, which is as follows:-

- Use of 5 point Likert Scale and later it transformed into 0-100 scale.
- The conjoint profiles were rated during face-to-face interviews as Schedules to one group of sample and the other group of sample, group format was adopted, 7- 10 participants per group in a focus group discussion.
- Efficacy, an important parameter was also calculated and it has been found to have good amount of impact on acceptability of the vaccine.

Outcome of the study was such that it fulfilled the aim with which the researchers conducted it that was to check the feasibility of the Conjoint Analysis. And this study has elaborated in good depth the calculations involved to get Efficacy and acceptability that are crucial for all those who work on the similar area.

7. CONCLUSION:

On the basis of the review of both the conjoint studies, we conclude that it can be applied not only in the field of marketing, psychology and economics but also in the field of Medicines. The rating based conjoint analysis is worth useful and quite common among the well established academic research organizations. The any researcher who has the similar type of purpose of the research can easily start with this method. The calculations involved are also quite simple to understand and the outcome of the SPSS analysis is much easy to interpret. Conjoint analysis in both the studies have shown that it is a great tool to decide what product concept are of highly preferred and the product variants can be made to suit the particular target audience as well.

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