THE EFFECTS OF TIME ON THE STABILITY OF THE DETERMINANTS OF INTENTION

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Abstract

An investigation of the stability over a three month period of the relative importance of the attitudinal and normative components of Fishbein's intention model showed a certain amount of instability. However, the changes in marketing strategy as a result of this instability were few.

Introduction

In the early 1970's, marketers began investigating the applicability of the theories of Martin Fishbein (Fishbein and Ajzen, 1975). During the first part of the decade, the research centered on his expectancy-value attitude model. This model views attitude (A) as the sum of the salient beliefs (b_I) about the outcomes of performing a behavior weighted by the evaluation (e_I) of those outcomes. Mathematically, the expenctancy-value formulation can be represented as $A = \Sigma b_I e_I$.

Within a few years, marketers had turned to Fishbein's extended model. This model was designed to predict behavioral intention (BI) which was assumed to mediate actual behavior (B). Intention was viewed as being determined by the attitude toward performing the behavior (A_B), i.e., the extent to which the customer felt that his performing the behavior was a good or a bad thing to do, and the subjective norm (SN), i.e., the consumer's feelings about the extent to which "important others" want or do not want him to perform the behavior. The relative importance of A_B and SN is determined through the use of multiple regression analysis. Mathematically, the model can be represented as:

$$B \approx BI = (A_B)_{w_0} + (SN)_{w_1} \quad (1)$$

The determinants of A_B, beliefs and their respective evaluations, were discussed earlier. The determinants of SN are (1) normative beliefs (NB_I), i.e., feelings about the desires of specific referents . . . people whose opinions about the performance of the behavior are felt to be "important" and (2) the motivation to comply (Mc_I), i.e., the extent to which the referent's wishes are complied with. Mathematically, SN can be represented as:

$$SN = \Sigma NB_I(Mc_I) \quad (2)$$

By 1975, there had been enough tests of the extended model to warrant a review article (Ryan and Bonfield, 1975). While the extended model has been used to predict many marketing and non-marketing behaviors, including smoking marijuana (Bearden and Woodside, 1979), a number of issues still remain. These issues include: (1) the ability of the model to predict individual brand choice (Bass, 1972); (2) the formulation of the normative component (Glassman and Fitzhenry, 1976); (3) the casual nature of the model (Dickson and Minard, 1979); and (4) the appropriateness of using multiple regression to determine the relative importance of attitudinal and normative influences.

The use of multiple regression has been questioned because of the inherent instability of regression coefficients. Even Fishbein feels that this is a weakness of the model. However, he has defended its use by saying that despite its inadequacies, multiple regression is the best technique currently available (Fishbein, p.c.). This instability can be conceptually and strategically troublesome. Conceptually it can be troublesome because the regression weights represent the relative importance of attitudinal (psychological) and normative (social) influence. While the weights are expected to vary over time, populations and products, one would expect the weights, if they are psychologically meaningful, to remain stable for different subsamples of the same population, responding to the same questions about the same products within a relatively short period of time. Stability is important strategically because only an attitudinal message, i.e., a message designed to change salient beliefs and/or their respective evaluations, should have an effect on the intention to perform an attitudinally determined behavior. Likewise, only a normative message, i.e., one that deals with the social desirability of the product or its use, should have an effect on a normatively determined behavior. Changing the "wrong" component of the model should have no impact on buyer behavior.

The purpose of this paper is to examine the relative stability of these regression coefficients. If they are found to be stable, then those who attribute significant psychological meaningfulness to the weights for segmentation and other strategic purposes could feel somewhat more confident in doing so. Should the weights be unstable, it could cast some serious doubts about the usefulness of the model.

Method

Phase 1 - Questionnaires were distributed to 160 women shoppers as they entered a neighborhood Chicago area supermarket. The questionnaire (see Appendix A) was a semantic differential type scale suggested by Fishbein (Fishbein and Ajzen, 1975, p. 309) that ascertained the respondent's attitude toward buying, intention to buy, beliefs (and their respective evaluations) about buying, normative beliefs (and their respective motivation to comply) about buying each of the following products: Tide and Cheer detergent, Jay's and Lay's potato chips, Standard and Shell gasoline, and Hill's Bros. and Folger's coffee. Usable questionnaires were returned by 126 women.

Phase 2 - Because the paper deals with stability over time, the method of operationalizing time and measuring its effects is crucial. Unfortunately, the literature provides very little guidance. Repeated measures was considered. However, this approach wasn't used because of problems of internal and external validity (Campbell and Stanley, 1963). It was decided that a separate sample pretest-posttest design (Campbell and Stanley, 1963, p. 55) would be best. This design is externally valid and suffers from fewer threats to internal validity. By recording the names of Time 1 respondents, the independence of the Time 1 and Time 2 samples was assured. Because the grocery store's clientele was loyal, static, geographically limited and demographically well defined, it was felt that the cognitive structure

of the two samples, at least in terms of the relative importance of attitudes and norms in determining the intention to buy the products under investigation, should be the same.

The rationale behind a three month time interval began with the purpose of the study. If attitudes and norms are psychologically meaningful, they should be stable with respect to the products investigated unless the marketing strategy (attitudinal/normative focus) changes. Other, non-marketing events shouldn't change the relative importance of the weights if they are psychologically meaningful. Three months was felt to allow for other, non-marketing factors to work while at the same time minimize the likelihood that a company would change the attitudinal/normative focus of its marketing. An analysis of the advertising for the eight products during the three month period showed no change in the attitudinal/normative focus.

To keep survey instrument bias constant, the same instrument was administered. Seventy-five women received the survey as they entered the store. Usable questionnaires were returned by 58 women. An analysis of the demographic characteristics of the Phase 1 and Phase 2 samples showed no statistically significant differences.

Results

Table 1 shows the attitudinal (column 1) and normative (column 3) regression coefficients and the multiple correlation coefficient (column 5) for each of the eight products based on the data collected at time 1 (T_1) and T_2. The effect of time on the regression coefficients was determined by using the following formula (Kerlinger and Pedhauzer, 1973):

$$F = \frac{(R^2_{y.123} - R^2_{y.14}) \,/\, (k_1 - k_2)}{(1 - R^2_{y.123}) \,/\, (N - k_1 - 1)} \qquad (3)$$

where: (1) $R^2_{y.123}$ is the squared multiple correlation coefficient for the following independent variables: time (a dummy variable), A_B or $\Sigma NB_i Mc_i$ at T_1, and A_B or $\Sigma NB_i Mc_i$ at T_2; (2) $R^2_{y.14}$ is the squared multiple correlation coefficient for the following independent variables; time and A_B or $\Sigma NB_i Mc_i$ for all 184 respondents; (3) k_1 and k_2 represent the number of independent variables associated with the first and second R^2 respectively; and N is the total number of respondents (184).

The results of the F-tests are presented in columns 2 and 4 of Table 1. Time does seem to affect the stability of the weights. While not encouraging, these findings don't necessarily mean the extended model is useless. Notice that, irrespective of time, the attitudinal contribution to intention was always significant and always greater than the normative contribution. As such, using either the T_1 weights or the T_2 weights would lead to the same strategy . . . an attitudinally oriented one. Ideally, a similar analysis of the normative component would show weights making a significant or insignificant contribution to intention, for a given product, irrespective of time. Unfortunately, this consistency was observed in only one-half of the cases (Folger's coffee, Standard gasoline, Tide detergent, and Cheer detergent). For the other one-half, strategy errors could occur in that normative factors might be emphasized when they made no contribution to intention and/or they might not be emphasized when they made a significant contribution to it.

TABLE 1

REGRESSION COEFFICIENTS AND R AT T_1 AND T_2

Product	Time	Attitudinal Regression Coefficient	Effect of Time	Normative Regression Coefficient	Effect of Time	R
Folger's Coffee	T_1	$.527^{xx}$	x	$.255^{x}$	xx	$.708^{xx}$
Folger's Coffee	T_2	$.476^{xx}$		$.186^{x}$		$.608^{xx}$
Hill's Bros. Coffee	T_1	$.697^{xx}$	xx	.134	xx	$.770^{xx}$
Hill's Bros. Coffee	T_2	$.569^{xx}$		$.207^{xx}$		$.707^{xx}$
Shell Gasoline	T_1	$.483^{xx}$	x	.205	x	$.585^{xx}$
Shell Gasoline	T_2	$.442^{xx}$		$.271^{xx}$		$.662^{xx}$
Standard Gasoline	T_1	$.500^{xx}$	NS	$.296^{x}$	x	$.726^{xx}$
Standard Gasoline	T_2	$.500^{xx}$		$.255^{xx}$		$.680^{xx}$
Tide Detergent	T_1	$.740^{xx}$	xx	.039	xx	$.767^{xx}$
Tide Detergent	T_2	$.665^{xx}$		.105		$.742^{xx}$
Cheer Detergent	T_1	$.571^{xx}$	xx	.148	NS	$.676^{xx}$
Cheer Detergent	T_2	$.461^{xx}$		.133		$.529^{xx}$
Jay's Potato Chips	T_1	$.444^{xx}$	xx	$.330^{xx}$	xx	$.680^{xx}$
Jay's Potato Chips	T_2	$.651^{xx}$		.120		$.724^{xx}$
Lay's Potato Chips	T_1	$.492^{xx}$	x	.153	NS	$.600^{xx}$
Lay's Potato Chips	T_2	$.540^{xx}$		$.179^{x}$		$.665^{xx}$

NS = Not Significant
x = $p < .05$
xx = $p < .01$

N: T_1 = 126
T_2 = 58

Conclusion

The strict statistical (F) test of the stability of the regression coefficients over time gave disappointing results. However, the analysis of the stability of the relative importance of attitudes and norms and of the statistical significance of the contribution to intention of the two components over time was encouraging because it showed that the statistically significant differences meant few changes in marketing strategy. Whether this will always be true . . . one can't say. Other situations, particularly those in which the contribution of attitudes and norms to intention is approximately equal, need to be investigated. Researchers who have additional data on this issue should be encouraged to present their findings so that the issue of stability and its effects on marketing strategy can be clarified.

Appendix A
Questionnaire

Intention - (BI)

The next time I go shopping for (product category)

I do +3: : : : : :-3 I do not

plan to buy (brand name)

Attitude - (A_B)

My buying (brand name) is

Good 7 : : : : : :1 Bad

Foolish 1 : : : : : :7 Wise

Harmful 1 : : : : : :7 Beneficial

Pleasant 7 : : : : : :1 Unpleasant

Reliable 7 : : : : : :1 Unreliable

The sum of the five responses was taken as the index of attitude.

[1]Normative Beliefs - (NB_i)

(Referent i) thinks I

should : : : : : : I should not

buy (brand name)

Motivation to Comply - (Mc_i)

In general,

I want to do : : : : : : I don't want to do

what (Referent i) thinks I should do

[2]Beliefs - (b_i)

Buying (brand name) is buying a (product category) that (attribute)

True : : : : : : False

Evaluation - (e_i)

Buying (product category) that (attribute) is

Good : : : : : : Bad

[1]The subjective norm, the global measure of normative influences, was not measured. This in no way should affect the results of the study.

[2]An elicitation pretest of 40 women was used to determine salient beliefs and relevant referents.

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