Attitudinal theories of consumer choice behaviour: a comparative analysis

Rabi S Bhagat, PS Raju and Jagdish N Sheth

The role of attitudes in the conduct of buyer behaviour is examined in the context of two competing models of attitude structure and attitude-behaviour relationship. Specifically, the objectives of the study were to compare the Fishbein and Sheth models on the criteria of predictive as well as cross-validities. Data on both the models were obtained simultaneously and the results show that the Sheth model has high predictive validity and cross-validity, while the Fishbein model has lower predictive validity but high cross-validity. The comparative findings on the models are then discussed in terms of their operationalisations of the underlying constructs. Finally, the importance of considering other relevant moderator variables in improving the strength of relationship between consumer attitudes and consumer buying intentions is shown.

Background

Prediction of behaviour based on attitudinal and other social-context related variables has been the concern of both social and consumer psychologists. Several competing models proposing conceptual links between a number of such variables and occurrences of a given behavioural act have been recently proposed. Fishbein [12], for example, in extending Dulany's [9] theory of propositional control to social behaviour has formulated a model for the prediction of behavioural intention based on two major determinants: (i) attitude of the individual toward performing the specific act in question, (ii) his social normative beliefs pertaining to the given behavioural act weighted by his motivation to comply with such relevant beliefs. Further, it has been suggested that since most social behaviours are under volitional control (Ryan [23], Triandis [37]) knowledge of an individual's behavioural intention is a necessary prerequisite in the determination of a given behaviour. Rosenberg [30], Rokeach [22] and more recently Triandis [38], [37] also emphasise the role of behavioural intention as an immediate determinant of an individual's behaviour. Triandis [37] advances a probabilistic formulation of the occurrence of an act which is assumed to depend on (i) strength of the habit of the actor in emitting the act, (ii) the behavioural intention to emit the act and

(iii) the presence or absence of facilitating conditions which affect the performance of the act. And working within a behaviour theory framework, Sheth [29], [32] has developed a model in which a specific choice behaviour with respect to an object is determined by (i) pure affect towards the object, (ii) unexpected events or situational factors and (iii) behavioural intention with respect to the object (which itself is determined by a structure of multidimensional evaluative beliefs, ie attitudes toward the object), by the social stereotype notions associated with the object, by past experience with respect to the object [ie habit] and by situational events.

While all of these models treat behavioural intention as an immediate antecedent in the prediction of behaviour, it is only the Fishbein [12] model of attitude which has been very popular among both the social as well as consumer psychologists. In fact, a recent series of papers published in social psychology (Ajzen and Fishbein [1], [2], [3]; Fishbein [13]) as well as in consumer psychology (Sampson and Harris [24], [26]; Cowling [7], Tuck [39], Bass and Talarzyk [6]) provides evidence for the use of Fishbein's model in the prediction of consumer buying intentions. While research of this nature is useful and does provide relevant structural information relating to the model under investigation, very little is known about the efficacies of the models compared with each other.

The problem becomes even more complicated when one considers the criticisms directed at the expectancy-value models (Day [8]; Sheth and Tuncalp [35]; Wilkie and Pessemier [41]). Furthermore, some theorists in social psychology (Rokeach [22]; Triandis [38], [37]) have argued for the inclusion of other relevant factors in the prediction of behavioural intentions. Similar suggestions following the situationism tradition in psychology have been advanced by researchers in the area of consumer psychology (Howard and Sheth [16]; Sandell [27]; Sheth [29], Sheth and Raju [36]).

Therefore, there is need for compa

ative research on existing attitudinal models based on relevant criteria. In fact, it has been argued that it is difficult to establish superiority for any model unless a comparative study under the same setting, on the same issue and on the same group of subjects has been carried out [Sheth (33)]. Kaplan (17) has suggested several criteria for comparing relative effectiveness of a number of competing models:

1 the level of *descriptive power* inherent in the model ie to what extent the model adequately describes the phenomenon being studied. To describe a phenomenon such as buying behaviour, we need to use categories, ie constructs, as the fundamental building blocks. Observable empirical events are then assigned to these categories and linkages among the constructs are attained by a set of statements of relations among these constructs (Howard and Sheth (16)). The descriptive power refers to the logic of the statements and their internal consistencies (Zaltman, Pinson and Angelmar (42)).

2 the *level of explanation* the model is able to provide for the phenomenon under investigation; the facts adduced by the explanation must be relevant to the point at issue – that is, the phenomenon (Zaltman, Pinson and Angelmar (42)). Explanation is often contrasted with description, as providing us with not merely 'what happens', but 'why'. An explanation is a concatenated description of the phenomenon under investigation. In explaining a phenomenon, we give increasingly sophisticated descriptions of it; and we see something happens (ie the phenomenon) when we see it better, in greater detail (ie in a broader perspective) in providing a concatenation of just what *does* happen [Kaplan (17)].

3 the *level of prediction* the model aims for, ie to what extent the model allows us to make deductions from known to unknown events within a conceptually static system [Schuessler (28)]. The ability to predict is a characteristic of well-established empirical generalisations which, after repeated experimental confirmations, get transformed into theor-

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etical laws. A prediction is reasoned and is advanced from a set of nomological propositions from which what is predicted is also being inferred (Kaplan [17]). A frequently encountered example would be the use of regression analysis to predict buyer behaviour from a consideration of a number of other independent predictors.

4 the *level of prescription* the model is able to establish for the phenomenon, ie the ability of the model to ear-mark and prescribe the degree of interconnectedness of the phenomenon under investigation with other related events (Kaplan [17]).

The present study focuses on the nature of predictive efficacies (criterion 3) of two attitudinal models (ie Fishbein [12] and Sheth [32]) in the prediction of consumer buying intentions. Specifically, the study addresses the issue of predictive and cross-validities of these two models by controlling for and minimising outside influences. The data for the two models reported in this study have been collected on the *same subjects*, at the *same time* and under *identical settings*. Our reasons for delimiting the scope of the study to the criterion of predictive efficacy are as follows:

1 It is beyond the scope of this study to compare the two models on all of the above criteria.

2 The criteria of predictive as well as prescriptive efficacy are deemed more relevant in the comparison of attitudinal models (Zaltman, Pinson and Angelmar [42]). However, a systematic comparison on prescriptive criteria would call for a longitudinal study. Since the present study is cross-sectional, we focus only on the issue of relative predictive efficacies of the two models. Objectives of the study are:

1 A comparative analysis of the prediction of consumer buying intentions with respect to a durable consumer product from the two models under investigation.

2 Predictive validation of the results by comparing the correlation co-efficient obtained from the total sample with the correlation coefficient obtained from the analysis sample. A model is considered

valid on this criterion if the percentage of explained variance on the criterion is quite large in both the total as well as in the representative sample. However, by means of predictive validation alone it would be difficult to extend the generalisability of the result to other representative samples. Consequently, the study has been extended to cross-validation of the results as well.

3 Cross-validation of the results would require invariance of the correlation coefficient from the derivation sample to the validation sample. These two samples are obtained by randomly dividing the total sample of respondents into two groups by a split-half method.

This procedure is described in some detail at a later section of this paper.

Theory

A brief description of the two models is provided below. Detailed descriptions of the models are to be found in Fishbein [12], [13], [14] and Sheth [29], [32].

FISHBEIN MODEL OF ATTITUDE STRUCTURE AND BEHAVIOURAL PREDICTION

As noted earlier, according to Fishbein [12] there are two major factors that determine behavioural intention. The first of these is termed attitude toward the act in question and the second is a multiplicative component consisting of an individual's social normative beliefs and his motivation to comply with these beliefs.

Mathematically, the model can be represented as follows:

$$(1) \quad B{-}BI = \left\{ A_{act} \right\} w_0 + \left\{ (NB) (Mc) \right\} w_1$$

where B = Overt Behaviour, BI = Behavioural Intention, A_{act} = Attitude toward the act, NB = Normative Belief, Mc = Motivation to comply with the normative belief and w_0 and w_1 are empirically determined weights. Consistent with Fishbein's earlier theorising (Fishbein [11]), the first component of the model is hypothesised to be a 'function of the act's perceived consequences and of their values to the person' (Ajzen

and Fishbein [4]. A_{act} is conceptualised in terms of two distinct components of an expectancy-value model: (I) An individual's belief (B) about the probability that the behaviour in question will result in an outcome i and (II) his or her evaluation of (or attitude toward) the outcome i.

Taking n to represent the total number beliefs, A_{act} is represented as follows:

$$(2) \quad A_{act} = \sum_{i=1}^{n} B_i a_i$$

The normative component of the model (NB) × (Mc) is assumed to reflect the influence of the individual's immediate social environment (eg expectations of his referent groups) pertaining to the behaviour in question and his or her motivation to comply with such perceived normative expectations.

When a number of different relevant social groups could conceivably affect the behavioural intention of the individual, Fishbein [12], [13] proposed the following formulation:

$$(3) \quad B{-}BI = \left\{ \sum_{i=1}^{n} B_i a_i \right\} w_0 + \left\{ \sum_{j=1}^{k} NB_j (Mc_j) \right\} w_1$$

where k is the number of such socially relevant referent groups that could affect the behavioural intention. In a recent paper, Ajzen and Fishbein [4] note that although the present state of understanding of social normative beliefs is rather limited, they are best viewed as the individual's perception of his referent groups attitude toward his performing the given behaviour, ie A_{act}.

SHETH MODEL OF ATTITUDE STRUCTURE AND BEHAVIOURAL PREDICTION

In the Sheth Model [29], [32] behaviour (B) has been conceptualised as a function of (I) behavioural intention (BI) of the actor with respect to the object and (II) affect (A) towards object based on the actor's degree of satisfaction or dis-

satisfaction with respect to the object as result of past exposure to the object. Sheth [32] suggested that such affective tendencies based on an actor's degree of satisfaction or dissatisfaction contribute to strengthening the future behavioural predispositions [BI] toward the object, and (III) unexpected events (UE) that might intervene between the expression of the behavioural intention and the manifestation of the overt behavioural 'act' toward the object.

The model mathematically expressed is as follows.

$$[4] \qquad B = f(A, BI, UE)$$

where:

B = a specific act or behaviour manifested by an individual toward an object

A = affect toward the object based on past satisfactions or dissatisfaction derived from exposures to the object.

UE = unexpected events experienced by the individual at the time of overt manifestation of behaviour toward the object. It is presumed that affect and behavioural intentions are uncorrelated with unexpected events, and that occurrence of unexpected events at the time of manifestation of behaviour can either enhance or inhibit the conversion of affect and behavioural intention into actual behaviour. Behavioural intention is hypothesised to be a function of evaluative beliefs about the object; (II) social stereotype beliefs about the object; (III) anticipated situational factors, ie those that one could anticipate and, therefore, calculate their possible influences and impacts on his future plans and/or intentions; and (IV) affective tendencies based on his past satisfactory/unsatisfactory experiences with the object. Expressed in the form of a functional relation, behavioural intention in the Sheth (1974) model is represented as follows:

$$[5] \qquad BI = f(EB, SS, AS, A)$$

where:
BI = the individual's plan to behave in a certain way toward the attitude object.

EB = the individual's set of evaluative beliefs about the attitude object.

SS = the individual's social stereotype beliefs influencing his behaviour toward the object.

AS = the individual's anticipation of events at the time of his planned manifestation of behaviour toward the object, and

A = the individual's affect toward the object based on patterns of past satisfactions or dissatisfactions derived from being exposed to the object, ie an reinforced habit toward the object.

With reference to the above formulation, it is suggested that situations may arise when these four [EB, SS, AS and A] may, in fact, act in opposition to one another; and in situations where habit-forming patterns are likely to predominate, the behavioural intention could be determined primarily by affective orientation (or habit) with respect to the object. In fact, in such cases, substitution of affect in the place of evaluative beliefs in the above equation may lead to a superior prediction of behavioural intention. Such situations often arise in repetitive goal-directed behaviours. The structure of evaluative beliefs would become more streamlined and stable as the actor performs the be-

FIGURE 1

A conceptual theory of attitude structure and attitude-behaviour relationship
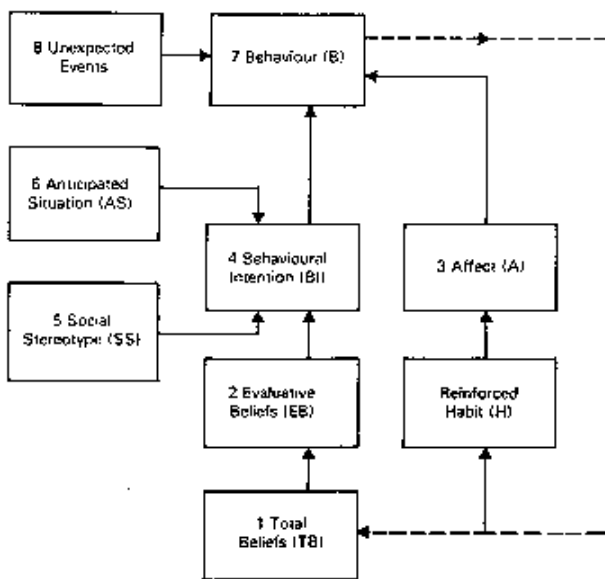
haviour in a sequential fashion.

Evaluative beliefs are conceptualised as serving the instrumental-utilitarian function in the cognitive domain of the individual. Following Katz [18] and Katz and Stotland's [19] original formulation, the set of evaluative beliefs is assumed to be multidimensional in nature which would require a dimensional analysis (such as factor analysis) for its operational representation. A profile analysis of the attitude object's salient functional properties as they relate to the needs of the individual is ordinarily called for. Howard and Sheth [16] have considered evaluative beliefs to be the profile of assessment of a goal-object relative to competing objects on a set of underlying choice criteria based on the notion of Miller's [21] approach-avoidance gradients. In an earlier paper, Sheth [29] has argued that there is no explicit theoretical reason as to why the individual would not retain the distinct multidimensional properties of the evaluative beliefs.

Affect represents the positive or negative predisposition of the individual in relation to treating the object as a goal object. Ordinarily, affect is based on satisfactions derived from past experiences with the object. Affect is presumed to be univariate and unidimensional. However in situations where affective tendencies are anchored to the goal setting or goal-blocking properties of the object, a complex multidimensional structure may underlie the affective tendency.

Social stereotype is conceptualised in terms of all the factors, ie socio-economic, demographic and other role related images of the attitude object that involves the individual's social imagery or connotation of the object. It is presumed that this social imagery or connotation of the object exercises normative influences on the individual as to how he or she should behave with respect to the object in the near future. Variables such as age, sex, education, occupational styles, life cycles and life styles, etc, contribute to the development of social imagery of the object. This stereotype factor is also presumed to be a multi-

dimensional concept which requires a dimensional analysis on a profile of perceptions as they relate to a variety of socially relevant factors.

Anticipated situation factor includes all the relevant activities the individual may engage in at the time of performing the actual behavioural act in question. Occurrence of a desirable anticipated situation may enhance the behavioural intention while an undersirable situation would have just the opposite effect.

It is presumed that this anticipated situation factor is much more situation dependent and ad hoc than the social stereotype or evaluative belief factors. As a result, one cannot possibly develop an invariant list of variables as indicators of the anticipated situation factor. Nevertheless, one can determine some generalised contingencies that could realistically be related to behavioural intention. Such indicators could be (I) cyclical phenomena such as holidays, vacations, birthdays, schooling, education, etc; (II) anticipated mobility such as moving to a new neighbourhood or to a new job, etc. It is believed that in view of the rising rate of geographical mobility among consumers today a number of buying decisions may strictly be due to this factor; (III) anticipated financial situation of the decision maker. This includes his anticipated incomes and expenditures that may affect his buying intentions.

And finally, in the formulation of behaviour, Unexpected Events (UE) refer to the antecedent and continuous stimuli that may impinge on the individual at the time of his engaging in the given behaviour act. In other words, it refers to all the situational factors that might change the planned course of action of the individual by exercising some directive influences. In buyer behaviour, the Unexpected Events factor can be illustrated by the announcement of the sale of a competing brand in the supermarket, which influences the purchase plan of the housewife. More importantly, it is suggested that it is the intention to opt for some supposedly more rational choice that the influence of Unexpected Events may

change; ie they may change what otherwise would have been an 'act' based upon prior planning and affect.

MULTIPLE REGRESSION FORMULATION

Both the Fishbein [12] and the Sheth [32] models could be expressed in the form of multiple regression equations. With behavioural intention as the dependent variable, the Fishbein model is expressed as follows:

$$(6) \quad BI = (A_{act}) \, w_o + (NB \times Mc) \, w_1$$

and the Sheth model [32] is written as

$$(7) \quad BI = b_1 \, (EB) + b_2 \, (SS) + b_3 \, (AS) + b_4 \, (A)$$

The scope of the present study is limited to the prediction of consumer buying intention only. Our reasons for doing so are as follows:

1 Fishbein's model is limited only to the prediction of behavioural intention, ie does not specify the nature of variables that may intervene between the expression of behavioural intention and the manifestation of an overt behavioural act. Also, such a procedure is agreeable to the originators of these two models.

2 Data collection is easy only up to the behavioural intention level. Understandably, it is difficult to collect data on each individual's actual behavioural act with respect to the object for a large scale empirical study.

3 Better control in design of the study and its implementation is possible only behavioural intention is taken as the relevant dependent variable for comparative prediction purposes.

Method

SAMPLE COMPOSITION

The empirical investigation of the relationships among the various components of the two models is based on the data collected on a sample of 24 respondents. The respondents were mainly students and student-housewives from the resident student community of the University of Illinois at Urbana-Champaign, Illinois. An earlier

analysis by Sheth (31) had shown that these samples of students and student wives do not differ significantly from the other consumers with respect to the psychological processes involved in the choice behaviour, although they may differ in their involvement and substantative outcomes with respect to a consumer product.

THE ATTITUDE OBJECT

The attitude object selected for the present study was the Pinto car manufactured by the Ford Motor Company, Ltd. An indepth interview with twenty five housewives from the Urbana-Champaign community and twenty five students from the University of Illinois carried out during the pilot study revealed the importance of 'Pinto' as a suitable car for buyers in the socio-economic range of the target population.

PILOT STUDY

In order to obtain relevant belief items pertaining to the act of buying Pinto, a pilot study was conducted with another independent sample of 40 respondents. Each of the respondents was asked to elicit a number of most salient beliefs about buying a car by asking them 'When buying an automobile, what brand characteristics or properties are important to you?' From a frequency count of the responses, the attributes occurring with the greatest frequency were selected for constructing the belief scales. Such a procedure yielded altogether twelve belief items pertaining to the product category under consideration. Similar belief items have been used by other researchers in studies relating to automobile purchase (Alpert, (5)).

OPERATIONAL DEFINITIONS OF THE THEORETICAL CONSTRUCTS

The various constructs in the Fishbein model are operationally defined as follows:

1 *Attitude toward the act* (A_{act}) The first component of A_{act} was the B_i component. The concept 'my buying Pinto' was rated on a number of seven-point scales ranging from 'probable' to 'im-

probable'. An example of the specific rating scales used was the following:

My buying Pinto would mean
buying an automobile that is
economical to operate
probable _:_:_:_:_:_ improbable

Following Glassman and Fishbein (15), these belief items were especially construed so as to represent a specific cognition with respect to the 'act of buying Pinto' as opposed to the 'Pinto' per se.

The a_i component was measured by the standard procedure of semantic differential scales. Each a_i component was rated on a seven-point good-bad semantic differential scale. An example was as follows:

Buying a car that is
economical to operate is
good _:_:_:_:_:_ bad

2 *Normative beliefs (NBs)* since it is difficult to identify relevant social groups who would exercise potential normative influences on any given individual as far as the act of buying a car is concerned, an alternative procedure was adopted. Such a procedure, often used in studies pertaining to the use of birth-control techniques, etc, (eg Glassman and Fishbein, (15)) is intended to tap the aggregate social normative influences exercised upon the individual by all the relevant groups. The particular scale used was the following:

Others who are important to me think
I should
I should _:_:_:_:_:_ not
buy a Pinto

3 *Motivation to comply (Mcs)* motivation to comply with the normative beliefs was tapped by a scale that measures the generalised tendencies of an individual to comply with the normative expectations of his relevant social groups. Such a procedure has often been recommended by Fishbein (13) and his associates ie Glassman and Fishbein (15). The scale tapping such motivational tendency was as follows:

In general I want to do what others who are important to me think I should do
In general I don't want to do

4 *Behavioural intention (BI)* behavioural intention was measured by the use of the following scale:

I would buy a Pinto
I would not

Operational definitions of the various constructs in the Sheth model were as follows:

Evaluative beliefs (EBs) an example of a belief item in the Sheth model is as follows:

Pinto is a luxury car
Pinto is an economy car

It is to be noted that the belief items are not drawn to the extreme ends of a continuum, ie they are not necessarily bi-polar in nature. It is argued that evaluations of the belief items pertaining to any act of buying are not carried to their extreme probabilities because such probabilities are hard to find in the real world of consumer behaviour (Howard and Sheth, (16)).

Social stereotypes (SS) the social stereotype toward the Pinto car was measured in the form of projective type questions. A specific rating scale is reproduced below:

Pinto is meant for young people only
strongly agree _:_:_:_:_:_ strongly disagree
cannot judge □

Affect (A) overall like or dislike toward Pinto was measured in terms of the question constructed as follows:

Please indicate the extent to which you are favourably or unfavourably predisposed toward Pinto.

most
most un-
favour- favour-
able _:_:_:_:_:_:_ able
toward toward
Pinto Pinto

Anticipated situation (AS) the importance of anticipated situation factors were measured by invoking in the respondents the possibilities of a number of unforeseen events (such as moving from the present locality, getting married, birth in the family, etc) which could conceivably affect their buying intentions. Their subjective estimation of the impact of such situational factors on their behavioural intention were measured by seven-point scales. Three such scales related to *financial, personal* and sale-related *buying* situations were identified and the subjective estimates of the effect of these factors on behavioural intention were obtained. A specific question was as follows.

If you were to buy an automobile in the next six months, would you have any financial problems?

I can
easily
I simply raise
cannot _:_:_:_:_:_:_ enough
afford it money
to pay
for it

In our discussion of the Sheth model, we noted that the behavioural intention is measured by asking the respondent:

If you were to buy an automobile, how seriously would you consider buying a Pinto?

definitely
definitely would
would not
consider _:_:_:_:_:_:_ consider
buying a buying a
Pinto Pinto

Thus, in the Sheth model behavioural intention is, at least implicitly, a qualified expression of behaviour. Also, the operationalisation suggests that behavioural intention is made conditional to the fact that the individual is considering the prospects of buying an automobile.

USE OF MULTIPLE REGRESSION IN PREDICTIVE VALIDATION

In the present analysis, testing of relative efficacy of the two models was carried out in three stages. First, we compared the multiple Rs of the models resulting from the regression of the model components on the criterion of behavioural intention. Such a procedure provided us with the result of predictive power of both the models on the criterion of behavioural intention. Secondly, the multiple R for each model was computed on a randomly drawn sample from the total sample by the split-half method and then checked against the magnitude of multiple Rs of the total sample. This method checks both the reliability as well as the stability of regression coefficients for each of the models and gives indication of the variation (if any) due to sampling fluctuations. Since in the Sheth model factor scores for evaluative beliefs and social stereotypes are utilised in the predictor variable set, principal components analyses were performed on these two sets of scales using the total sample. The factors were then subjected to the criterion of varimax rotation and the factor scores for

each individual in the sample were obtained from the rotated factor loadings matrix. These factor scores were kept invariant for all further analyses. Even when the sample was divided for the purposes of predictive as well as cross-validation, the factor scores for each individual were kept invariant.

Finally, we cross validated the magnitude of multiple Rs on the validation sample for both the models by using the regression coefficients obtained from the analysis sample. Indeed, if the models are predicting the criterion scores accurately, it is to be expected that the multiple Rs obtained from the analysis sample would be identical with that obtained from the validation sample for both the models. Cross validation is meant to depict the relative stability of regression weights for both the models in a randomly drawn sample from the original sample of respondents.

Results

Below we present the results of Fishbein and Sheth Models respectively.

FISHBEIN MODEL RESULTS

As is evident from Table 1, $[A_{act}]$ is found to be a significant predictor of buying intention, while [NB x Mc] does not contribute to the variability of BI. Multiple correlations are 0.47

TABLE 1
Fishbein Model results on total sample and analysis sample

Predictor variables	total sample n = 243		analysis sample n = 124	
	Beta weight	Standard error	Beta weight	Standard error
$A_{act} = \sum B_i a_i$	0.467***	0.057	0.485***	0.079
[NB x Mc]	−0.037	0.057	−0.043	0.079
Multiple correlation (R)	0.472***		0.487***	
R^2	0.223		0.237	
Adjusted R^2	0.220		0.231	
F ratio	34.318		18.823	
Standard error of estimate	1.594		1.614	

*** $p < 0.001$

TABLE 2
Orthogonally rotated factor structure
of evaluative beliefs on total sample (N = 243)

Items	Factor I (Quality)	Factor II (Luxurious-ness)	Factor III (Sporty-ness)	h^2
1 Luxury/economy	−0.077	0.838	0.160	0.733
2 Big/small engine	0.119	0.734	0.260	0.621
3 Pollution	0.064	0.723	−0.066	0.531
4 Sportyness	0.035	0.176	0.847	0.749
5 Expensive/economical to buy	0.118	0.680	0.018	0.476
6 Economical to operate	0.100	−0.608	0.400	0.538
7 Durability	0.731	0.100	−0.103	0.555
8 Good/poor handling	0.605	−0.179	0.484	0.632
9 Safety	0.827	0.071	0.037	0.691
10 Ride	0.826	0.047	0.048	0.691
11 Acceleration	0.648	0.191	0.216	0.503
12 Resale value	0.689	−0.097	0.038	0.486

Note: total variance explained = 60.058 and sum of h^2 = 7.20. Factor loadings greater than 0.450 are underlined

TABLE 3
Orthogonally rotated factor structure
of social stereotype beliefs on total sample (N = 243)

Items	Factor I (Car for bachelors)	Factor II (Car for moderate income)	Factor III (Car for less affluent people)	h^2
1 Pinto is meant for young people only	0.148	0.763	0.148	0.625
2 Pinto is meant for people with moderate income	0.118	0.615	0.095	0.401
3 Pinto is suitable for older people	0.092	−0.657	0.095	0.450
4 Pinto is a car meant for everybody	0.180	−0.698	−0.106	0.531
5 Pinto is great as a second car in the family	0.651	−0.064	0.102	0.442
6 Teenagers and college students love Pinto	0.747	0.080	−0.220	0.613
7 Very rich people would never consider buying a Pinto	0.053	0.178	0.857	0.786
8 Pinto is great for a bachelor	0.568	0.012	−0.484	0.557
9 Young unmarried women prefer Pinto	0.784	0.014	0.113	0.628

Note: total variance explained = 55.907 and sum of h^2 = 5.032. Factor loadings greater than 0.450 are underlined

$(p < 0.001)$ in the total sample and 0.487 $(p < 0.001)$ in the analysis sample, thus showing that these two predictors jointly account for about 23 per cent of the total variance in the total sample and about 24 per cent of the total variance in the analysis sample.

Using the regression coefficients obtained in the analysis sample to predict the multiple correlation for the validation sample resulted in an overall magnitude of 0.432 $(p < 0.001)$. The magnitude of this correlation coefficient compared to that obtained in the analysis sample, is 0.487 $(p < 0.001)$ is only slightly lower, thus demonstrating once again that the overall predictive efficacy of the model does not change appreciably due to sampling fluctuations. In other words, the Fishbein model may be expected to account for about 23 per cent of variance in buying intention in other representative samples drawn from this population.

SHETH MODEL RESULTS

Results for the Sheth model are presented in three stages. First, we present the rotated factor structure of the evaluative beliefs (EB) and social stereotype (SS) for the total sample. Secondly, the results of multiple regression analysis of all the predictor variables with the criterion of consumer buying intention are shown. And finally, we present the results of both cross as well as predictive validation studies.

An inspection of the Table 2 shows that the first factor could be termed as a factor pertaining to the 'quality' dimension of Pinto as a passenger car. For example, items such as durability of the car, handling, safety, ride, acceleration and resale value load heavily on this factor. The second factor can be interpreted as representing the 'luxuriousness' dimension of Pinto. Items relating to luxury/economy, size of the engine, pollution properties and price load on this factor. The third factor, evidently represents the 'sportyness' dimension of Pinto. Belief items relating to sportyness, economy of operation and handling make up this factor. Next the rotated factor structure of the social stereotype

is presented. Various items loading on these factors represent the brand stereotype or imagery that Pinto seems to invoke in the mind of the respondents. For example, items representing the image of Pinto as a car meant for bachelors, young unmarried women, teenagers and collegiates all load heavily on the first factor. We conceptualise this factor as representing the conglomeration of those cognitions that invoke the social stereotype of a car meant for 'bachelors'. The second factor seems to represent the social stereotype of Pinto as a car meant for 'people with only moderate income'. And the third factor indicates that Pinto is a car that is stereotyped with respect to less affluent people.

Results of multiple regression in the Sheth model are summarised in Table 4. This shows that altogether four variables are significant in the prediction of consumer buying intention. Affect toward Pinto seems to be the best predictor of buying intention for both the total as well as the analysis sample. Evaluative beliefs representing the 'quality' and 'sportyness' dimensions are also significant predictors, and the anticipated buying situation is also a determinant but in the negative direction. This latter finding, very much conforming to the expectations of the model, implies that the influence of the anticipated buying situation can significantly deter the buying intention.

Multiple correlations of all predictors with the criterion of buying intention are 0.728 (p < 0.001) for the total sample, and 0.749 (p < 0.001) for the analysis sample, explaining about 53 per cent of variance in the total and 56 per cent of variance in the analysis sample. The magnitude of difference between the correlation coefficients obtained in the analysis sample and that in the total sample is quite low. This empirical finding suggests that the overall predictive efficacy of the model does not change appreciably due to sampling fluctuations. Finally, using the regression coefficients obtained in the analysis sample to predict the multiple correlation for the validation sample resulted

in an overall magnitude of 0.665 (p < 0.001). The magnitude of this correlation coefficient compared to that obtained in the analysis sample, is 0.749 (p < 0.001) is somewhat lower. However, the predictive validation results are still highly significant.

COMPARISON OF RESULTS OF TWO MODELS

Comparison of the predictive efficacy of the two models were carried out in two stages. First, since the two models use a different number of predictor variables, it was necessary to calculate adjusted R^2 values (ie coefficient of determination) by using the following formula. Adoption of this procedure eliminates the possibility of a larger multiple R resulting from employing a relatively larger number of predictors in the Sheth model. The shrinkage is reflected in the reduced magnitude of the adjusted R^2s calculated for both the models. Thus, these adjusted R^2s are reflective of the true predictive efficacies of the models, ie

they represent the nature of intrinsic and qualitative performances of the independent variables with respect to their respective standard criteria. The formula used was:

$$\text{Adjusted } R^2 = 1 - (1 - R^2)\frac{N-1}{N-n}$$

where N = sample size and n = number of predictor variables in the given model.

Tables 2, 3, and 4 contain these adjusted R^2 values calculated for both the models. As pointed out in these tables, the drop in the overall multiple correlation for the Sheth model is not very high — thus demonstrating that this superiority in the predictive efficacy cannot be attributed to the larger number of variables in the Sheth model.

Secondly, since the two models use different criterion variables, it was necessary to compute multiple R for the Sheth model's criterion using Fishbein model's predictors and vice-versa. The These results clearly show that even

TABLE 4
Sheth Model results on total sample and analysis sample

Predictor variables	total sample n = 243		analysis sample n = 124	
	Beta weight	Standard error	Beta weight	Standard error
Evaluative Belief (Factor I)	0.121*	0.054	0.267**	0.080
Evaluative Belief (Factor II)	−0.016	0.046	0.042	0.063
Evaluative Belief (Factor III)	0.128**	0.047	0.170*	0.069
Social Beliefs (Factor I)	−0.005	0.051	−0.035	0.072
Social Beliefs (Factor II)	−0.017	0.047	0.032	0.065
Social Beliefs (Factor III)	−0.024	0.047	−0.051	0.071
Affect toward object	0.483***	0.058	0.386***	0.088
Anticipated Situation (Personal)	0.039	0.047	0.037	0.066
Anticipated Situation (Buying)	−0.245***	0.051	−0.239**	0.070
Anticipated Situation (Financial)	−0.049	0.046	−0.069	0.064
Multiple correlation (R)	0.728***		0.749***	
R^2	0.530		0.561	
Adjusted R^2	0.512		0.526	
F ratio	26.148		14.455	
Standard error of estimate	1.384		1.338	

*p < 0.05   **p < 0.01   ***p < 0.001

with Fishbein's criterion, Sheth model variables predict a higher value of multiple R both in the total as well as in the analysis sample. Using Fishbein model variables to predict the Sheth criterion variable result in relatively much lower multiple Rs in both the total and as in the analysis sample.

These results point to the superiority of the Sheth model in terms of its predictive efficacy. Both the models perform quite satisfactorily when subject to cross validations. This indicates that the regression coefficients obtained are quite stable and are not affected by sample size considerations and that the predictive ability is relatively unchanged over different random samples from the same population.

Discussion

The above results show that the Sheth model obtains better correlations at each level of analysis. The superior predictive power of the Sheth model could perhaps be attributed to the following reasons.

MEASUREMENT OF BI

First, one of the most distinct differences between the two models is in their operationalisation and measurement of buying intention. Fishbein [12] has argued quite convincingly that behavioural intention should be measured with respect to a specific object and not a generalised group of objects. Thus, buying intention should be measured with respect to the specific brand of a car such as the Pinto rather than the generalised product category of 'automobiles'. This point is very significant in the measurement of the buying intention. On the other hand, Sheth goes one step further and recommends that the buying intention toward a specific object should be further qualified with respect to the need or the motivation level of the consumer. In the Sheth model, therefore, the buying intention is measured not only with respect to a specific brand but also is made conditional on the fact that the respondent buys the product class. Thus, the respondent expresses his intention to buy the Pinto assuming

that he is considering buying an automobile. The Sheth model, therefore, recognises the fact that buying intentions can be predicted from attitudinal, social and other variables only if the buyer has any need for the object. To examine the extent to which the different BI scales affect the results, the analyses were repeated using the Sheth BI scale on the Fishbein model and vice-versa. These analyses as shown in Table 5 produced almost insignificant changes in the results pointing to the fact that there are perhaps other important reasons for the difference in the predictive power of the two models.

VARIABLES INCORPORATED

Secondly, the Sheth model incorporates certain variables which are not recognised in the Fishbein model. For example, both affect toward the object and anticipated situation, which are significant predictors of BI in the Sheth model, are not considered in the Fishbein model. Further, though not directly relevant to this study, the Sheth model gives due recognition to unexpected events that might intervene between BI and behaviour. The fact that affect toward the object and one of the anticipated situation variables did come out as significant predictors in the Sheth model leads us to believe that they are necessary for a better model of attitude-behaviour relationship.

OPERATIONALISATION OF CONSTRUCTS

Thirdly, whereas in the Fishbein model the attitude toward the act is a composite score, obtained by summing over the products of B_i and a_i, the Sheth model's operationalisation of the same construct is accomplished through the underlying dimensions of the evaluative beliefs by factor analysis. The disadvantages of the summation approach have been pointed out by several researchers (Day [8], Sheth [32]). At least in the area of consumer psychology, there is still a controversy as to whether both components (B_i and a_i) are necessary for measuring consumer attitudes toward a product category. The summation ap-

proach assumes that positive and negative beliefs and importances cancel each other out linearly (ie summate) and simplify the cognitive structure. Such an assumption need not necessarily be true.

On the other hand, Sheth's approach is based on the notion that the consumer retains a profile of assessment of the object by means of certain underlying dimensions of evaluative beliefs. The recognition of the multi-dimensionality of the cognitive structure is, thus, a distinct advantage of the Sheth model. The same argument holds in the case of the social variables considered by the two models. The factor analytic approach adopted by Sheth seems superior to the summation of ($NB \times Mc$) adopted by Fishbein. It seems reasonable to argue that with reference to poor predictive ability of social-context related variables in both the Fishbein as well as in the Sheth model, it seems reasonable to assume that Pinto is probably a universal car. What this means is that homogeneity in the sample with respect to life cycle, socio-economic status, occupational styles have also reduced the social imagery of the brand. Such a reduction in social imagery connotation has reduced its contribution to intention of buying 'the Pinto'.

Implications for future research

There are several implications of the results of this study. Perhaps the most important one is the reaffirmation of the views expressed by several researchers that attitude toward the object or act is not necessarily the major determinant of behavioural intention (Wicker [40], Sheth and Raju [36]). In fact, the current trend of research (Ehrlich [10]) in this area has been directed at identifying appropriate moderator variables that could conceivably affect the relationship. A more recent review (Liska [20]) almost conclusively shows the importance of multi-variate conceptualisation in order to establish viable attitude-behaviour research.

But it would not be sufficient to merely identify the intervening variables. Systematic research is also needed to (I)

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operationalise these variables and develop scales to measure them; (II) incorporate them in formal attitudinal models; and (III) compare the different attitudinal models on relevant criteria in a variety of situations.

Though this study by no means addresses all the above issues, it is at least a step in the direction of comparing two distinct conceptual models of attitude structure in terms of their relative efficacy in the prediction of buying intentions by using the criteria of predictive and cross-validation. It is hoped that rigorous validation studies on the existing attitude models would reveal their respective strengths and weaknesses – and would extend our understanding of the role of attitudes in buyer behaviour.

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Sommaire

Le rôle des attitudes dans le déroulement du comportement de l'acheteur est examiné dans le contexte de deux modèles concurrents de relation entre la structure d'attitude et l'attitude-comportement. Le but de l'étude était précisément de comparer les modèles Fishbein et Sheth sur les critères de prévision de validité et de recoupement de validité. Les données sur ces deux modèles étaient obtenues simultanément et les résultats indiquent que le modèle Sheth a une prévision de validité et un recoupement de validité élevés tandis que le modèle Fishbein a une prévision de validité plus faible mais un recoupement de validité plus élevé. Les résultats comparatifs des modèles ont alors été discutés en fonction de leurs opérationalisations des constructions sous-jacentes. Et finalement, on a montré l'importance de considérer les autres facteurs variables modérateurs qui s'y rapportant en améliorant la force de la relation entre les attitudes du consommateur et les intentions d'achat du consommateur.

Kurzfassung

Die Rolle der Haltungen im Vollzug des Käuferverhaltens wird im Zusammenhang von zwei konkurrierenden Modellen der Haltungs-Struktur und der Haltungs-Verhaltens-Beziehung untersucht. Im Besonderen wären die Ziele der Untersuchung, die Modelle Fishbeins und Sheths unter dem Kriterium von voraussagenden als auch querverbindenden Gültigkeiten zu vergleichen. Für beide Modelle wurden Daten simultan erstellt, und die Ergebnisse zeigen, daß das Sheth-Modell hohe voraussagende Gültigkeit als auch querverbindende Gültigkeit besitzt, während das Fishbein-Modell geringere voraussagende Gültigkeit, aber hohe querverbindende Gültigkeit besitzt. Die vergleichenden Ergebnisse der beiden Modelle wurden dann in Bezug zu ihren Operationalisationen der zugrundeliegenden Konstruktionen diskutiert. Und schließlich wurde die Bedeutung aufgezeigt, die in der Berücksichtigung anderer relevanter Moderator-Variablen in der Verbesserung der Beziehung zwischen Haltung und Kaufabsicht des Verbrauchers liegt.