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Consumer Acceptance or Consumer Preference

By Glenn L. Burrows

Data drawn from studies designed to measure consumer acceptance or consumer preference are frequently misinterpreted simply because it is not clear which is being measured. It is necessary to know whether consumers can distinguish between alternatives before their preferences can be established. Consumer preference seeks the motivation for buying behavior; consumer acceptance records buying behavior. Discrimination tests are necessary prerequisites to intelligent preference studies, which in turn delimit the scope of acceptance studies. This paper suggests concise definitions of acceptance and preference that should reduce misinterpretation and faulty measurement.

CONFUSION ABOUND in the literature describing investigations of consumer acceptance and consumer preference. The two basic causes are the same two that cause confusion throughout the whole field of investigative research. The first is the failure to define precisely, and suitably restrict the subject of investigation. The second is the failure to employ a technique which can meet the objective.

The fact that consumers buy more of one product than of another which they prefer appears either a source of consternation to marketing researchers or justification for ignoring as unimportant one action or the other. Consequently, researchers struggle with diverse techniques of which no two measure precisely the same thing, and some of which measure neither acceptance nor preference.

It is not the purpose of this paper to discuss techniques nor to plead for more measurement; it is hoped that by focusing attention upon definitions, such measurements as are made can be more meaningful.

Acceptance Defined

The term "acceptance" of a particular commodity as most frequently measured involves either a measure of those quantities bought or of the number of consumers who buy the commodity when the "usual" alternatives are offered in conjunction therewith, and the price and income structures are known and fixed. The time interval, the population of consumers, and the members of the class of alternatives are stated or assumed to be known.

Imagine, for the sake of simplicity, two test commodities A and B. It is desired to measure their acceptance in retail stores in which a single logical alternative C is offered for sale. Let a, b, c represent the volumes sold—number of consumers—of A, B, C, respectively. A subscript will be employed to denote how and where each is measured—A and C in the same stores might sell in amounts a_1 and c_1 , respectively, whereas B and C in other stores, or in the same stores at another time, might sell in amounts b_2 and c_2 , respectively. According to the particular author's interpretation, either a_1 , or $a_1 + c_1$ reduced perhaps to a per store average, has been interpreted as the acceptance of A; a_1 and b_1 or $a_1 + c_1$ and $b_2 + c_2$ similarly adjusted have frequently been employed to serve as measures either of relative acceptance or of preference for A and B.

One can easily understand the appeal to such data to decide questions about acceptance or preference. It is not too difficult to see why at times "a," and at other times "a + c" per store might have been adopted as acceptance measurements of A. In instances in which neither the introduction of A nor that of B materially affects the normal volume of C, or in which their effects are substantially the same, there is temptation to conclude that "a" and "b" measure the relative acceptance of A and B. This is a dangerous conclusion, for even in this instance their values, their difference, and their ratio, are almost surely dependent upon store volume of business as defined by any reasonable measure. Granting this, if it is desired to demonstrate only whether $a_1 + c_1$ is greater than, or less than, $b_2 + c_2$, then totals and averages are probably less

important than measures of store-to-store consistency of the direction of the inequality. This consistency is the only sample evidence of reliability in such an acceptance measurement.

A more useful definition of the acceptance of A would employ the same measurements "a" and "c," but would treat them simply as a pair of numbers, that is, a vector quantity: (a,c). Note that if number of persons buying is used instead of quantity bought, and if the acceptance is that by a single individual, the vector can assume only one of four forms: (1,0), (0,1), (0,0), (1,1).

Among the advantages of such a definition are:

(1) An individual consumer's acceptance is defined, and methods are immediately available for extending to groups of consumers who patronize a particular store or several stores.

(2) The method of combination of vectors is not specified. Thus, for example, the nature of the dependence upon size of store is clear from store-to-store variations in the vector, making possible more precise inference about results to be expected in other stores with specified volume of sales.

(3) The method of combination of the vector components is not specified so that differential economic losses or gains attached to increases and decreases in "a" and "c" make possible realistic comparisons of vectors such as (a_1, c_1) with (a_2, c_2) and of (a_1, c_1) with (b_2, c_2) in which a_1 is not necessarily equal to a_2 , c_1 is not necessarily equal to c_2 , and $a_1 + c_1$ is not necessarily equal to $a_2 + c_2$.

Preference Defined

No semblance of unanimity exists among interpretations of consumer preference. Differences in definition appear not only among different investigators, but from one study to another, and even from one subject to another within the same study by the same investigator. It is not surprising therefore that preference and acceptance have frequently been mistaken one for the other.

The word "prefer" indicates a certain ranking; an assertion that one member of a class of alternatives is preferred to another clearly identifies at least two members of the class. Thus it would appear that if either individual or group consumer preference for a number of commodities were to be measured, a ranking of these commodities by the consumers is sought. The class of alternatives may well consist in part of those constituting the "usual" environment, but in a measurement of

preference among a group of commodities every consumer must rank every member of the group.

Once this is recognized it becomes clear that acceptance is just a special case of preference in which the class of alternatives consists of only one test commodity, together with those constituting the "usual" environment, and the ranks are measured by quantities bought or number of consumers buying. Also, the acceptance of A and of B—the pair of vectors (a_1, c_1) , (b_2, c_2) —whether for the same or different consumers, cannot be interpreted to yield a measure of preference for A and B.

The author of a recent publication,¹ in which several marketing research techniques are compared, has this to say of the "usual" environment: ". . . a consumer purchases or doesn't purchase what is offered on the basis of comparisons *between* stores and not *within* a given store. In a matched-lot study consumers purchase one lot or the other on the basis of a comparison of lots immediately adjacent to one another. . . . Matched lots might possibly be used to indicate preference but they do not indicate the extent to which this preference can be translated into purchases under normal conditions."

Here is the distinction between acceptance and preference succinctly put, with an apt warning to those who would mistake one for the other. It is to be hoped, however, that this author would not seal the fate of consumer and of competitive supplier alike for want of knowledge of consumer preference for a commodity whose misfortune it is to enjoy, in whatever form, inelastic demand.

A knowledge of consumer preference, properly utilized, can be an intelligent guide to so-called education and advertising campaigns or to the modification of a salable product. Preference studies frequently answer the question of why consumers buy or do not buy a product, and are therefore the logical precursors of many acceptance studies. They limit the forms of a product which must be subjected to acceptance measurement and demonstrate the existence of alterable preferences founded upon ignorance, prejudice, or fancy. Acceptance measurement records behavior, but it is an expensive tool with which to ascertain the motivation for that behavior. In acceptance tests, the investigator must provide the stimuli to consumer behavior; in preference studies, he is frequently

¹ New York (Cornell) Agricultural Experiment Station. Methods of Research in Marketing. July 1951.

seeking those stimuli.

Certain properties of preference have been discussed; one further desirable property will be noted before attempting a definition. Because individual consumers express a preference among a group of commodities, and because some measure of the collective preference of a number of consumers is desired, it would seem that, whatever the definition, group preference should reflect in some way the preferences of members of the group, and should itself be a preference of the same form as that defining an individual's preference. This principle is not universally recognized. The definitions that follow interpret preference as it frequently occurs in the literature, but the first three do not meet this requirement.

(1) Individual preference among three alternatives A, B, C is the vector (a, b, c)—a, b and c might be the quantities purchased of A, B, and C, respectively, by the individual during a specified time interval, in stores that offer simultaneously all three alternatives at fixed prices. They may be defined alternatively as either zeros or ones, depending upon whether the individual bought or did not buy the particular alternative. They may be simply numbers capable of assuming a well-defined set of values. They may be merely the letters a, b, c—the order is assumed fixed whenever a, b, c, assume numerical values. If only the letters a, b, c, are used, their order signifies the order of preference; ties (that is, no preference) in this instance will be indicated by a repetition of the first letter of the tie. For example, if an individual prefers C to B to A, his preference vector is (c,b,a); another who prefers C to A or B, but who has no preference among A and B, would have a preference vector (c,a,a).

This can easily be extended to accommodate any number of commodities. Group preference is to be a vector whose coordinates are, respectively, the numbers of times a, b, and c occur first among the individual preference vectors. A repeated letter shall be counted as $1/n$ for each of the letters it stands for, and n is the number of repeats. Thus in (a,a,b), a would count as $1/2$ for a, and $1/2$ for c.

(2) Individual preference defined as above; group preference defined as a set of 3 vectors, one for A, one for B, one for C, each constituted by the number of times its corresponding commodity placed first, second, and last, frequencies calculated as in (1).

(3) Same as (1) except that the coordinates of the group-preference vector are the respective sum of the elements in the A, B, and C vectors in (2)

The following definitions do satisfy the requirement.

(4) Individual preference defined as above; group preference to be the most frequently occurring individual preference vector. (We shall assume there is a most frequently occurring vector. This will usually be so in a random sample of considerable size from a larger group).

(5) Individual preference defined as previously; group preference a vector consisting of the elements (a,b,c) ranked in order of the magnitude of their corresponding frequencies determined in (1).

(6) Same as (5) except that frequencies are determined as in (3).

These illustrations suggest that individual preference could be defined as a vector and, in fact, that it is frequently thought of as such. But this is an over-simplification that stems from desire to relate preference to a particular form of consumer behavior, and actually diminishes the worth of a preference measurement. An improvement would be to define it as an array of vectors—that is, a matrix, the rows of which are preferences for each specific attribute common to the various alternatives. The attributes may be those of size, color, utility, durability, aroma, cost, and so on ad infinitum. The elements of the row vectors may be different for different attributes. There is no reason why they should be required to be the same; some may not even be quantified.

It would be difficult and may be impossible to formulate a rule of combination of these vector preferences into a single preference vector. Different individuals probably employ different rules. It is not certain that the same individual employs the same rule when he records his preference in different behavior patterns. At different times an individual's expression of his preference, regardless of the form of behavior interpreted as an indicator of preference, takes account of different row preference vectors. Consequently, one may obtain, at different times, different expressions from the same individual, even though his preference matrix may have remained stationary.

This disconcerting state of affairs has led, on the one hand, to complete rejection on the part of some researchers of all preference measurements and,

TABLE 1.—Sales of Florida potatoes in test stores in Baltimore, Md.

Week	Sales							
	Red Bliss			Others	Pontiac			Others
	Store No.	Waxed	Not waxed		Store No.	Waxed	Not waxed	
	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	
Mar. 16-Mar. 22	1	778	169	4,035	3	300	200	2,465
	2	713	53	4,450	4	847	120	4,545
Mar. 30-Apr. 5	3	641	156	2,810	1	450	103	5,210
	4	692	176	4,525	2	560	106	3,330

on the other, to careless conclusions about the fluctuation of individual and group preferences. One school of researchers maintains that the individual must not be prompted in expression of his preference to consider other attributes than those he desires, because this allegedly creates for him an unnatural preference pattern. Either failure to combine the same rows, or the use of different rules of combinations, is sufficient to account for the fact that an individual may rank subgroups of alternatives inconsistently with his simultaneous ranking of all members of the class of alternatives from which the subgroup was selected.

These phenomena are to be expected. Far from discouraging the use of preference measurements, they should stimulate rather more accurate evaluation and wider application of different measuring techniques, for it is only by such means that the reasons for consumer behavior will become known. But it is exceedingly important that the objective of the measurement be kept firmly in mind, that appropriate techniques be employed, and that the observations really substantiate the inferences drawn therefrom.

The matrix definition of preference previously suggested should provide more information than any single preference vector, and its nature should assist in preventing its misinterpretation. In practice, the distinction between acceptance and preference would be less obscure than formerly, and consequently the confusion of terms would be diminished.

Acceptance and Preference Illustrated

The opportunity for confusion of acceptance for preference, and the converse, is illustrated by the

results of a study presented in tables 1 and 2. This study was carried out under the Research and Marketing Act of 1946 as a part of Southern Regional Project SM5 "Spoilage in Marketing Early Irish Potatoes" and reported by R. E. L. Greene in *Consumer Acceptance of Waxed and Colored Potatoes*. The data given here, only part of those in the original publication, have been selected to illustrate both the basic design of the study and some points relevant to this discussion. Consequently the conclusions drawn here may be somewhat different from those based upon the whole of the experimental evidence. Readers who are interested in the over-all implications of the study are referred to the report of the experiment.

The data selected illustrate boldly the difference between acceptance and preference. The commodities under test are Florida potatoes of two varieties, Pontiac and Red Bliss, both offered to consumers in two forms: (1) Thinly coated with a wax emulsion containing a small amount of United States certified red color, and (2) not waxed. Table 1 shows the volume of sales of the test commodities in four test stores for 2 weeks of the test period.

The study plan required each of eight other stores to offer only one of the two Florida varieties, and only one form of that variety at a time, in addition to its customary offerings of potatoes. Table 2 shows the volume of sales for the four stores offering the Red Bliss variety during the selected 2 weeks of the test period.

No measurement of preference for varieties is given in either table because consumers in no store were allowed a choice of the two test varieties.

TABLE 2.—Sales of potatoes in four test stores in Baltimore, Md.

Week	Sales							
	Store No.	Red Bliss Waxed		Others	Store No.	Red Bliss Not Waxed		Others
		Total	Percentage of total	Total		Total	Percentage of total	Total
		Pounds	Percent	Pounds		Pounds	Percent	Pounds
Mar. 16-Apr. 22	1	528	18.2	2,370	3	547	21.1	2,050
	2	484	15.7	2,600	4	390	9.6	3,665
Mar. 30-Apr. 5	3	407	19.9	1,640	1	576	18.2	2,590
	4	640 ¹	11.9	4,735	2	588	19.4	2,450

¹ Store 4 offered Pontiac waxed on March 30 instead of Red Bliss waxed; the sales shown are totals of all waxed potatoes for the week.

However, the conclusion from these selected data is undoubtedly the same as that of the author of the aforementioned report: "When given an equal opportunity to buy waxed and unwaxed potatoes (of the test varieties), consumers exhibited a decided preference for those that were waxed and colored."

If one had no other data than that in table 2, it would seem difficult to conclude that the volume of sales of waxed potatoes is any different from that of unwaxed potatoes. Again it should be noted

that the data were purposely selected from a larger body of data. The length of the periods of observation and the number of stores involved are not of present concern. It is relevant to the discussion only to indicate that it is possible for consumers to exhibit marked preference for commodities for which there is no experimental evidence of differences in acceptance. In the face of such evidence, a distinction between consumer acceptance and consumer preference must surely be made.