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A Review of Brand-Loyalty Measures
in Marketing

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Abstract

Brand loyalty represents an important asset to the firm. While considerable agreement exists on its conceptual definition, no unified approach to operationalize the concept has yet emerged in the marketing literature. We provide a conceptual framework to classify existing measurement approaches, discuss their relative advantages/disadvantages and provide some managerial recommendations.

I. Introduction

The success of a firm depends largely on its capability to attract consumers towards its brands. In particular, it is critical for the survival of a company to retain its current customers, and to make them loyal to the brand. Former Ford vice president Basil Coughlan estimates that every percentage point of loyalty is worth $100 million in profits to his firm (Serafin and Horton (1994)), and major enterprises like Del Monte, Harley Davidson and General Motors are spending large sums of money to induce brand loyalty (Alonzo (1994); Lefton (1993)). Firms selling brands with a high rate of loyal consumers have a competitive advantage over other firms. Brand loyal consumers reduce the marketing costs of the firm as the costs of attracting a new customer have been found to be about six times higher than the costs of retaining an old one (Rosenberg and Czepiel (1983)). Moreover, brand loyal consumers are willing to pay higher prices and are less price sensitive (see e.g. Krishnamurthi and Raj (1991); Reichheld and Sasser (1990)). Brand loyalty also provides the firm with trade leverage and valuable time to respond to competitive moves (Aaker (1991)). In sum, loyalty to the firm's brands represents a strategic asset which has been identified as a major source of the brands' equity.

Given the importance of brand loyalty, it is not surprising that it has received considerable attention in the marketing literature since Copeland's seminal work which was published over 70 years ago (Copeland (1923)). Studying and managing brand loyalty, however, should start with a clear definition of the construct involved and the development of valid measures. Unfortunately, while there seems to have emerged considerable agreement on the conceptual definition of brand loyalty since the work of Jacoby and Chestnut (1978), no unified perspective to measure it has emerged yet. Still, a valid measure is essential for a better understanding of the concept by marketing researchers and marketing managers alike. Moreover, knowing the limitations of a measurement method is crucial for a correct interpretation of the results of a study. The purposes of this paper therefore are: (1) to present a structured review of the major categories of brand-loyalty measures, with an emphasis on the developments since Jacoby and Chestnut's (1978) monograph; and (2) to provide directions to marketing managers with respect to the use of brand-loyalty measures in applied marketing settings. This review starts with a detailed discussion of the brand-loyalty concept. Next,

we evaluate four main types of brand-loyalty measures. Finally, conclusions are drawn and recommendations for the managerial use of brand-loyalty measures are provided.

II.   The concept of brand loyalty

It is convenient to distinguish *conceptual definitions*, which are abstract descriptions of the phenomenon being studied, and *operational definitions*, which are measurement methods (see e.g. Jacoby and Chestnut (1978); Peter (1981)). Conceptual definitions are necessary to assess the construct validity[1] of the adapted measurement methods. Without them, the correctness of specific brand-loyalty measures cannot be evaluated and meaningful and meaningless results cannot be distinguished.

Perhaps the most elaborate conceptual definition of brand loyalty was presented by Jacoby and Chestnut (1978). We will use and discuss this definition, because it covers the most important aspects of brand loyalty, and since it enjoys widespread support in the marketing literature, either in its original form or in slightly modified versions (e.g. Assael (1992); Mowen (1993); Wilkie (1990)). According to this definition, brand loyalty is: "*The (a) biased, (b) behavioral response, (c) expressed over time, (d) by some decision-making unit, (e) with respect to one or more alternative brands out of a set of such brands, and (f) is a function of psychological (decision-making, evaluative) processes* (Jacoby and Chestnut (1978, p.80))". This definition identifies six requirements for brand loyalty. Below, each of them is discussed in somewhat more detail.

Biased behavioral response   (a-b)

First, brand loyalty is a biased response. This implies that there has to be a systematic tendency to buy a certain brand or group of brands, which means that brand choice should not follow a zero-order process. A process is zero-order if each brand is chosen by the consumer with a certain probability which is independent of the consumer's past purchase decisions. Nothing that the consumer did or is exposed to alters the probability to purchase a specific brand (Massy, Montgomery, and Morrison (1970)).[2] Zero-order behavior is not part of the brand-loyalty construct, because this would imply that brand loyalty is beyond control of any marketing action and hence a meaningless concept for

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marketing managers. Brand loyalty also entails actual purchases of a brand. Verbal statements of preference towards a brand are not sufficient to ensure brand loyalty.

Expressed over time   *(c)*

An incidental bias towards a brand does not guarantee brand loyalty. As the process is dynamic, some consistency is needed during a certain time span. This suggests that one should not only consider the number of times a specific brand is purchased during that period, but also the purchase pattern over successive purchase occasions. As such, one can distinguish partially loyal behavior from completely (non)loyal behavior. Considering a purchase sequence for brands A and B, Brown (1952) distinguished consistent loyalty towards brand A (indicated by a purchase sequence AAAAAA), divided loyalty (ABABAB), and unstable loyalty (AAABBB). For brand A the situation is much dimmer under unstable loyalty than under divided loyalty. These simple examples show that the purchase pattern over a given time span contains valuable information about brand loyalty.

Decision-making unit   *(d)*

Brand loyalty is defined by the purchase pattern of a decision-making unit which may be an individual, a household or a firm. Important to notice is that the decision unit does not have to be the actual purchaser. For example, the purchases of a household are often made by one of the parents, but other members of the household may also be involved in the decision process (see e.g. Agnew (1987); Davis (1976)). This issue becomes important when the members of a household have different product-needs and use goods for different purposes. In that case, we might observe switching behavior on the household level which represents different needs or usage purposes by different family members rather than an absence of brand loyalty.

Selection of brands   *(e)*

The fifth condition is that *one or more brands* are selected *out of a set of brands*. This condition implies that consumers may actually be loyal to more than one brand, a phenomenon observed by many researchers (e.g. Ehrenberg (1972); Jacoby (1971); O' Leary (1993)). Especially for low involvement goods, the consumer often does not

evaluate brands on a continuous scale, but classifies them discretely as acceptable or unacceptable. If more than one brand is acceptable, an individual might be indifferent between them, and exhibit loyalty to a group of brands rather than to a single brand. A problem with multi-brand loyalty is that it is hard to distinguish this kind of behavior from brand switching, especially if there are only a few brands available. An individual who buys brand A and B with the purchase sequence ABBABAAB may be defined as a multi-brand loyal consumer if more than two brands are obtainable. But if only brands A and B are at hand, the behavior can be interpreted as brand switching, since every brand available is used regularly.

The fifth condition also implies that in order to have brand loyalty, there must be an opportunity to choose among alternatives. Jacoby and Chestnut (1978, p82) expressed it as follows: "Before one could speak of brand loyal, one must have the opportunity of being disloyal". As such, brand loyalty cannot exist when a brand has a monopoly position. The determination of the product category therefore becomes of major importance. We will return to this issue in section IV when we provide recommendations to marketing managers.

Function of a psychological process   *(f)*

Brand loyalty is a function of psychological (decision-making, evaluative) processes. Brands are chosen according to internal criteria resulting in a *commitment towards the brand*, which, according to Jacoby and Chestnut (1978), is an *essential element of brand loyalty*. This point of view is in line with the information-processing paradigm, which is the dominant point of view in consumer behavior (Bettman (1979)). Although consumers do not always actively seek information, they receive some information, e.g. due to advertising campaigns, which may be used to form certain beliefs about brands. Based on these prior beliefs, brands are evaluated and some are preferred over others. In time, the consumer may develop a commitment towards a brand and become brand loyal. Hence, brand loyalty implies consistent repurchase of a brand, resulting from a positive affection of the consumer towards that brand.

We should point out, however, that the importance of commitment is not supported by some researchers who argue that buying behavior is caused by instrumental conditioning (see Foxall (1987) for a review). They posit that observed

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behavior *alone* is capable of explaining brand loyalty. According to this view, the purchase will lead to a "reward" (the brand is adequate) or a "punishment" (the brand is inadequate). The former induces the repurchase of a brand while the latter induces brand switching. In this approach, brand loyalty is regarded as a consequence of behavior, rather than as an explanation.

We do not subscribe to the point of view that observed behavior alone is capable of fully explaining brand loyalty. We support Jacoby and Chestnut 's (1978) argumentation that commitment is an essential element of brand loyalty, as it allows to separate brand loyalty from repeat buying. Repeat buying may be due to inertia, which means that consumers stay with the same brand because they are not prepared to spend effort and time to search for other brands. A study of Hoyer (1984) concluded that inert consumers have different motives, different decision rules and require other marketing actions than brand loyal consumers. In particular they do not evaluate a large set of alternatives but use simple decision heuristics like "Always buy the cheapest brand" or "Always buy the same brand". Repeat buying may be influenced by variables such as e.g. the amount of shelf space or distribution intensity, which are supervised by the retail manager. In contrast, brand commitment is more likely to be influenced by a brand's distinguishing features, designing features or images (Riezebos (1994)).

III.   Measures of brand loyalty

The six criteria identified in our discussion of the conceptual definition can subsequently be used to evaluate specific operational measures. Rather than discussing all individual operationalizations in detail, and since measures which common characteristics have similar strengths and weaknesses, we classify them into four groups, based on the following two dimensions: (1) attitudinal versus behavioral measures, and (2) brand-oriented versus individual-oriented measures. These dimensions are used since they appear frequently in the marketing literature (e.g. Bloemer (1993); Jacoby and Chestnut (1978)), are related to specific requirements of the conceptual definition (which makes it easier to point out the advantages and drawbacks of a group), and provide a workable distinction for marketing managers.

Behavioral versus attitudinal measures

The majority of the operational measures can be categorized either as behavioral or attitudinal depending on their relative emphasis on, respectively, the purchasing or the cognitive component. The popularity of both approaches has varied over time and among researchers,[3] as both categories have their specific strengths and weaknesses (see Table 1).

Behavioral measures define brand loyalty in terms of the actual purchases observed over a certain time period, thus focusing on conditions a-c (biased behavioral response, expressed over time) of the conceptual definition. Their advantages are that they are: (1) based on actual purchases, which are directly related to the performance and existence of the firm; (2) not likely to be incidental as they are usually based on behavior over a period of time; and (3) relatively easier to get than attitudinal data.

The most important limitation of behavioral measures is that they make no distinction between brand loyalty and repeat buying, and therefore may contain spurious loyalty (Day (1969)). Furthermore, although behavioral data are the most accurate representation of past behavior, they are not necessarily a good representation of future behavior, especially under changed circumstances (Day, Shocker, and Srivastava (1979)). In particular, behavioral measures are sensitive to short-run fluctuations, caused for example by the fact that the custormer's prefered brand is temporarily out of stock. Finally, it is hard to pick the right decision unit as no information is collected on the reasons for a particular behavior.

In contrast to behavioral measures, attitudinal measures are able to distinguish brand loyalty from repeat buying. They are based on stated preferences, commitment or purchase intentions of the consumers, thus emphasizing the cognitive element of brand loyalty (conditions e and f of the conceptual definition). Using attitudinal measures, it might be easier to choose the right decision unit (condition d). They are usually based on surveys, and it may be possible to get data from the decision maker rather than the purchaser by asking questions to the right individual. Finally, they give insight into the reasons of choice behavior, which are less likely to be influenced by random short-run fluctuations.

However, it is not always straightforward that attitudinal measures are an accurate representation of reality as they are not based on actual purchases. A consumer

may rationalize his choice when questioned by the researcher, and make up an evaluation of brands even when he does not make an explicit evaluation in reality. Moreover, other variables than attitude are known to influence actual purchases. For example, an individual may have a favorable attitude towards Porsche, but still not buy it due to budget constraints. Hence, the validity of attitudinal measures depends on the strength of the attitude-behavior relation. Furthermore, attitudinal measures are often based on data observed at a given point in time. Their incidental nature might be diminished by collecting attitudinal data on a longitudinal basis, but the costs in doing so may become prohibitive.

Table 1.   *Advantages and disadvantages of behavioral and attitudinal measures.*

	Advantages		Disadvantages	
Behavioral	(1)	based on actual behavior	(1)	repeat buying not distinguished from brand loyalty
	(2)	non-incidental	(2)	More sensitive to short-run fluctuations
	(3)	easy to collect	(3)	difficult to pick right decision unit
Attitudinal	(1)	repeat buying separated from brand loyalty	(1)	valid representation of reality not guaranteed
	(2)	less sensitive to short-run fluctuations	(2)	incidental
	(3)	easier to pick right decision unit	(3)	harder to collect

Individual-oriented versus brand-oriented measures

Brand loyalty is the result of information processing of brand features by the consumer, which is implied by condition f. Hence, brand loyalty may be seen mostly as a property of the brand ('s features) (Aaker (1991); Rossiter and Percy (1987)) or may be concidered more as a characteristic of the respective consumers (Hafstrom, Chae and Choung (1992); Sproles and Kendall (1986)). Along those lines, we can classify brand-loyalty measures as, respectively, brand-oriented or individual-oriented. This distinction is sometimes not as clear-cut as between attitudinal- and behavioral measures, and some

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operationalizations may even be conceptualized as brand-oriented in one study and as individual-oriented in another.[4] In our subsequent discussion, we will classify these measures according to their most common use in the marketing literature.

If brand-oriented measures are used, a value of brand loyalty is estimated for each brand. Differences in loyalty between individuals are then of less importance, and data are often aggregated across individuals. With these measures, it is possible to compare brands, and to study the influence of their respective marketing strategies on the resulting brand loyalty. However, they are less suited to study the influence of individual characteristics on brand loyalty. Moreover, aggregation problems may arise if the consumer population is heterogeneous with respect to brand preferences. If this is not taken into account, the resulting estimates will be biased (Massy et al. (1970)).

On the other hand, if an individual-oriented measure is used, the loyalty of specific customers is estimated, and it is of less importance to what specific brand that individual is loyal. We may further distinguish individual-oriented measures which quantify brand loyalty within a specific product category (e.g. cars, soft drinks), and individual-oriented measures which measure brand loyalty as a general characteristic of the consumer (i.e. as a character trait). This information can be used to segment the consumer population or to study the influence of certain consumer characteristics such as risk avoidance, inovativeness, or shopping-proneness on brand loyalty. Because little attention is paid to specific brands, these measures are less suited to make comparisons between brands.

Summary

Based on the aforementioned dimensions, four main categories of measurement categories can be distinguished:

1. brand-oriented attitudinal measures (e.g. the proportion of consumers who intend to buy Stella Artois beer the next purchase occasion);

2. individual-oriented attitudinal measures (e.g. the score on an agreement-disagreement scale with the statement: "I like to stick to well known brands");

3. brand-oriented behavioral measures (e.g. the fraction of repeat buyers of Stella Artois beer);

4.   individual-oriented behavioral measures (e.g. an individual is brand loyal for the beer market if he buys his favorite brand of beer in more than fifty percent of the purchase occasions).

These four categories form the overall framework of our subsequent discussion. A detailed outline of it is presented in Table 2.

Table 2.   *Main categories of brand-loyalty measures*

	Attitudinal	Behavioral
Brand-oriented	A1. Stated purchase intentions / preferences measures A2. Commitment measures	C1. Measures based on aggregated data C1a. Measures based on aggregated switching matrices C1b. Measures based on market shares C2. Measures based on individual-level data
Individual-oriented	B1. Measures on the product category level B2. General measures	D1. Proportion-of-purchase measures D2. Sequence-of-purchase measures

A.   Brand-oriented attitudinal measures

In this main category, we examine (1) measures that use stated purchase intentions or stated preferences, and (2) measures that utilize commitment to indicate brand loyalty. The difference between these two subgroups is that the former is measuring intended behavior while the latter is directly measuring an essential element of brand loyalty.

A1.   Stated purchase-intention/preference measures

A brand-loyal consumer is likely to prefer a certain brand and has the intention to buy that brand on future purchase occasions. This has lead some researchers to use measures based on stated preference or on purchase intentions, after which one can derive the proportion of people preferring that brand.

The earliest effort to quantify brand loyalty in this way was made by Guest (1942) who asked individuals "Which brand do you prefer?". Since then similar measures have been employed quite frequently in marketing practice (see e.g. Brown

(1993); Test-Aankoop Magazine (January 1992)). Their main disadvantage is that they only indicate the *tendency* to buy a specific brand, and may therefore be at best a weak indicator of both actual behavior and underlying brand loyalty. On the positive side they are well interpretable, easy to obtain within a short period of time, and may therefore be an appropriate alternative when actual purchase data are hard to get (e.g. in the case of durable goods with long interpurchase times). Hence, although the theoretical base of these measures is weak, they may be quite useful for practical purposes.

A2.   Commitment measures

As indicated in our discussion of the conceptual definition, commitment towards a brand is an essential condition of brand loyalty. Hence, it seems logical that brand loyalty can be estimated in terms of commitment towards a brand (see e.g. Bloemer (1993); Martin and Goodell (1991); Traylor (1981)). To obtain a brand-oriented measure, the number of customers committed to the brand, or the mean level of commitment towards a brand is computed.

In the literature, several operationalizations of commitment have been proposed including direct ratings (see e.g. Traylor (1981)) and indirect approaches such as the extent one recommends the product to other people (Aaker (1991)). Compared to other attitudinal measures, commitment measures of brand loyalty are superior as: (1) an additional element of the conceptual definition (condition f) is explicitly incorporated, and (2) the link between commitment and behavior is likely to be stronger.

B.   Individual-oriented attitudinal measures

This group is divided into measures defining brand loyalty within a specific product category and those specifying brand loyalty as a general characteristic of the individual. When general measures are used, unique brands are not specified. In contrast, measures on the product-category level explicitly consider the evaluation of a number of brands.

B1.   Measures on the product-category level

An individual is likely to be brand loyal if he has a highly favorable attitude towards certain brands. Therefore, brand attitudes may be used to construct individual-oriented brand-loyalty measures. For expository purposes, we discuss this category using the

measure developed by Jacoby (1971). This measure has received considerable attention in marketing literature (see e.g. Bennett and Kassarjian (1972); Jacoby and Olson (1970); Jacoby, Chestnut, and Fisher (1978); Jarvis and Wilcox (1976)).
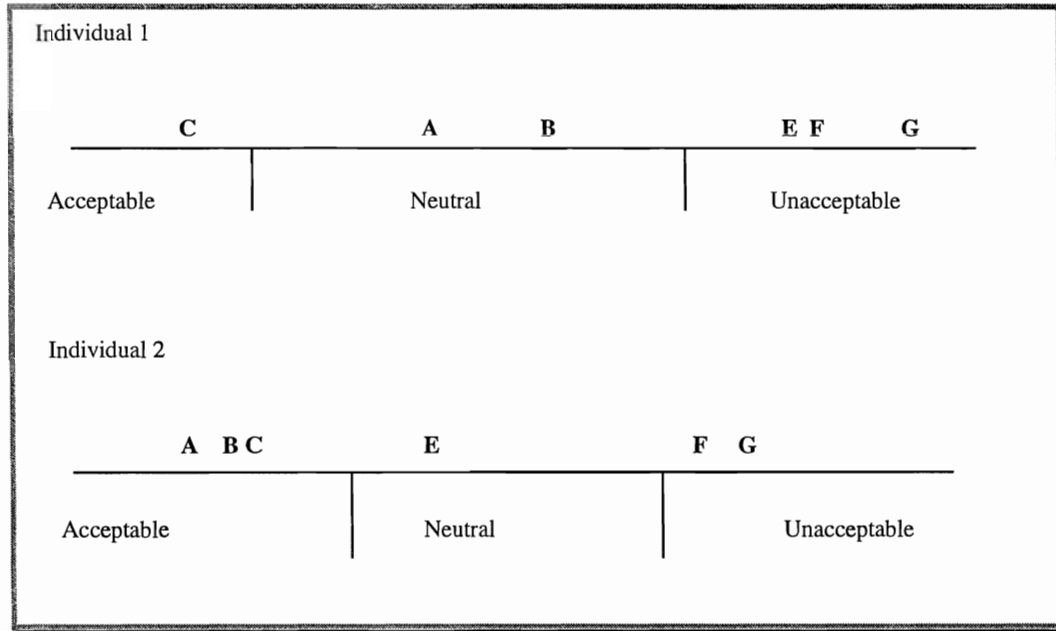

Individual 1

| C | A   B | E F   G |
| Acceptable | Neutral | Unacceptable |

Individual 2

| A   B C | E | F   G |
| Acceptable | Neutral | Unacceptable |

Figure 1.   *Acceptance/rejection scales of two individuals*

The basic idea is that an individual's attitude towards any brand varies from absolutely acceptable to absolutely unacceptable. If the number of acceptable brands increases, brand switching is more likely to occur, and the individual will become less brand loyal. This insight is reflected in an acceptance-rejection scale (see Figure 1).[5] Individual 1 is expected to be more loyal than individual 2 as only one brand is acceptable for him and he is likely to buy that brand on every purchase occasion. In this context, brand loyalty can be estimated by: (1) the number of brands in the acceptance region; or (2) the distance between the acceptance and the rejection region, which becomes larger when brand loyalty is stronger.

This method incorporates the evaluation process of the individual and allows for multi-brand loyalty. It requires, however, an expensive and time consuming data-collection method, especially if the number of brands under study increases. The measure seems rather sensitive to the specific brands chosen to analyze brand loyalty. For example, the evaluation of brands becomes blurred if unknown brands are taken into account, since they are unlikely to be rated higher than acceptable brands (Sabonmatsu,

Kardes, and Gibson (1989)). Therefore, obscure brands are hardly included in the acceptance region, but that is due to a lack of awareness rather than to an explicit evaluation.

B2. General individual-orientend attitudinal measures

General measures regard brand loyalty as an overall personality characteristic. Brand loyalty is not primarily the result of an evaluation of a specific set of brands but is caused by the consumer's personality or decision-making style. In this tradition, brand loyalty is estimated by a battery of statements of general individual behavior rather than statements about specific brands. Examples of this approach are the measures of Raju (1980), Sproles and Kendall (1986), and Hafstrom et al. (1992). For instance, Raju's measurement instrument included statements like: "If I like the brand, I rarely switch to another brand" or "I get bored buying the same brands, even if they are good". A score is obtained for each individual, depending on the level of agreement or disagreement with such sentences, and this score is interpreted as a general brand-loyalty measure.

The measures in this subgroup are relatively easy to apply and quantify brand loyalty directly as a property of the individual. They are useful in studying the influence of consumer characteristics on brand loyalty, and when dealing with new products where it is uncertain which individuals are most likely to become brand loyal. However, one may question whether it is actually justified to treat brand loyalty as a general characteristic (Asssael (1992)). The problem is that although some consumers may, overall, tend to be more brand loyal than others, many other variables (e.g. consumer knowledge of a product-category) also tend to influence their behavior. As their knowledge is not equally strong for every product-category, the consumer's loyalty may differ among product-categories, and the predictive validity of these general measures may be limited. A final drawback is that the evaluation and selection of specific brands (condition e of the definition) is not incorporated.

C. Brand-oriented behavioral measures

After discussing brand-oriented (section A) and individual-oriented (section B) *attitudinal* measures, we now focus on brand-oriented *behavioral* measures. A number of subgroups are distinguished within this cell on the basis of the measures' data

requirements. We distinguish: (1) measures based on aggregated data, and (2) measures based on individual-level data.

C1.   Measures based on aggregated data

Aggregation over individuals is a common way of obtaining brand-oriented loyalty measures. We discuss measures based on two kinds of aggregated data, namely switching matrices and market shares.

C1a.   Measures based on aggregated switching matrices

Brand loyalty may be quantified by distinguishing subsequent purchase occasions, and observing which brands are purchased. If an individual sticks with the same brand, his behavior can be characterized as brand loyal. This intuitive insight forms the basis for brand-loyalty measures derived from aggregate switching matrices.

Switching matrix				Markov matrix		
	Current brand				Current brand	
Previous brand	A	B		Previous brand	A	B
A	50	25	75	A	0.67 (50/75)	0.33 (25/75)
B	20	60	80	B	0.25 (20/80)	0.75 (60/80)

Figure 2.   *Transformation from a switching matrix to a Markov matrix*

For a simple two brand scenario, a switching matrix may, for example, indicate how many consumers sticked with the same brand or switched to another brand on *two consecutive* purchase occasions. As illustrated in Figure 2, these aggregate switching matrices can easily be transformed into a Markov matrix of conditional switching probabilities.[6] Component (1,2) of this matrix indicates the conditional probability of choosing brand B given that brand A was chosen on the previous purchase occasion. The diagonal elements then represent the probability of staying with the same brand, and can be interpreted as a measure of brand loyalty.

A first-order Markov process implies that consecutive purchases are statistically dependent (i.e. the probability of buying brand B in period *t* depends on what brand was purchased in *t-1*) and therefore satisfies condition (a) of the conceptual definition.

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Markov matrices have been used quite frequently to study brand loyalty (see e.g. Massy et al. (1970)). They are easily interpretable, and their analysis is straightforward. However, some researchers have criticized the use of Markov matrices in studying brand loyalty (see Engel and Blackwell (1982) for a review). One of the disadvantages is that the consumer population is assumed to be homogeneous, i.e. that all consumers have the same conditional probabilities. This assumption is rather restrictive as consumers are likely to have different preferences towards brands. If the consumer population is indeed heterogeneous in their preferences towards brands, the Markov-based estimate of brand loyalty will be biased (Massy, et al. (1970)).

A parsimonious way to incorporate heterogeneity was developed by Colombo and Morrison (1989), who distinguished two groups of buyers:[7] (1) hard-core loyals who buy the same brand with absolute certainty at every single purchase occasion, and (2) potential switchers who choose at every purchase occasion one of the brands according to a certain probability distribution (e.g. they choose brand A with probability 0.4 and brand B with probability 0.6). The proportion of hard-core loyals can be interpreted as reflecting the magnitude of a brand's loyalty base. These estimates are more realistic than those obtained using Markov matrices as they account for the fact that a single repeat purchase does not always imply brand loyalty. Hence, Colombo and Morrison's measure will contain less spurious loyalty than quantifications of brand loyalty based on Markov matrices.

The measure of Colombo and Morrison is a special case of latent-class models. For other (more complex) applications of latent-class models in the context of brand-loyalty measures, the reader is referred to Grover and Srinivasan ((1987), (1989)), Jain, Bass, and Chen (1990) or Jain and Rao (1994). The underlying idea of these studies is that the entire consumer population can be divided into different segments. The probability to choose a brand is the same for all consumers of the same subgroup but differs between the subgroups.[8] As with the Colombo and Morrison model, the size of the group choosing a brand with probability one (and which therefore is completely loyal) is used as the brand-loyalty measure.[9] These complex latent-class models are theoretically superior to the Colombo and Morrison model as the population of potential switchers is divided further into different segments, which usually is more realistic. Therefore, extended latent class models will provide better estimates of brand loyalty.

However, the models are mathematically complex, which may inhibit their widespread implementation among marketing managers.

C1b.   Measures based on market shares

Brand loyalty can also be quantified using the brand-specific intercepts in market-share attraction models (Cooper and Nakanishi (1988)). In those models a brand's market share is determined by its relative attractiveness vis a vis the other competing brands. This attractiveness is itself determined by (1) the value and effectiveness of its marketing-mix variables, and (2) a constant part, which is assumed to reflect the brand's loyalty.

The advantage of brand-loyalty measures based on market shares is that the data are often available at low cost. Moreover, brand loyalty is directly related to a performance variable that is very important to marketing managers. However, condition (1) of the conceptual definition (biased response) is not incorporated as a high market share might be the result of a zero-order process.

C2.   Measures based on individual-level data

So far, individual behavior has been aggregated (either in switching matrices or market shares) before deriving brand-loyalty estimates. In the last decade, several measures based on individual-level data have been developed. We discuss measures related to discrete-choice models.

Discrete-choice models are used increasingly to model the selection of brands out of a finite set of alternatives. In the context of these models, Guadagni and Little (1983) used an individual's sequence of purchases to derive a brand-loyalty estimate for that individual for each brand on every purchase occasion.[10] Brand j's loyalty measure for individual h on purchase occasion n, $BL^h_j(n)$, is defined as a weighted average of this value at the previous purchase occasion $(n-1)$ and the previous purchase decision. Stated formally:

$$BL^h_j(n) = \alpha \, BL^h_j(n-1) + (1-\alpha)HISTORY, \qquad (1)$$

where $HISTORY$ is a dummy variable which equals one if alternative j is chosen by individual h at purchase occasion $n-1$ and zero otherwise. The implication of formulation (1) is that at a given purchase occasion the purchase history of an individual

is exponentially weighted.[11] Brand loyalty is high for a particular brand, if that brand is bought frequently on recent purchase occasions. The relative influence of the most recent purchase is given by the parameter α. If α is zero, the first factor in equation (1) vanishes, and only the last purchase decision determines the value of the brand-loyalty measure: i.e. the most recently bought brand has a brand loyalty of one, and all others a brand loyalty of zero. In contrast, it is only determined by the very first purchase if α is one. Hence, the value of α is of utmost importance but unknown to the researcher. The estimation of this parameter is rather cumbersome (Fader, Lattin, and Little (1992)), and often the value of α is determined by a grid search on a hold-out sample. In discrete-choice models, the variable BL^h_j (n) is incorporated along with marketing mix variables to predict the individual's brand choice, and has often been found to have a significant explanatory power.

However, the Guadagni and Little measure in equation (1) does not filter out the effects of marketing-mix variables which may have affected the consumer's purchase history. As shown in Srinivasan and Kibarian (1990), this may both mask the effect of marketing-mix variables *and* overstate the loyalty estimate. Moreover, several researchers have argued that the expression captures the heterogeneity among consumers rather than their brand loyalty (Kanetkar, Weinberg, and Weiss (1990)).

Individual measures related to discrete-choice models offer vast opportunities for brand-loyalty research as (1) they are behavioral measures at the individual level, (2) choice dynamics are incorporated, (3) explanatory variables describing brands and consumers can be added so that both the individual-related component and the brand-related component of brand loyalty are implementable, and (4) the relative influence of brand loyalty on brand choice compared to other variables can be studied. However, the data requirements are high as individual purchase data over long time periods are needed. This issue is becoming less burdensome with the growing availability of scanner data. On the other hand, the measures are still hard to interpret and it is unclear whether they give an accurate and unbiased estimate of brand loyalty, which may inhibit their usefulness for marketing managers.

D. Behavioral individual-oriented measures

In the last cell, we consider behavior based approaches to measure brand loyalty as a property of the individual. In this respect, we discuss two main categories: (1) proportion-of-purchase- and (2) sequence-of-purchase measures.

D1. Proportion-of-purchase measures

As brand loyalty is a behavioral tendency towards a brand, one could say that an individual is brand loyal if he buys a brand at a very high rate. This insight is used by proportion-of-purchase measures. An example is Cunningham's market share criterion ((1956a,b)), which computes the market share of brands *within a household*. This method is a common way to separate loyal from non-loyal consumers (see also Helsen and Schmittlein (1994); Johnson (1984)). An individual is considered brand loyal for a given product category, if the brand purchased most frequently has a market share higher than some cut-off value (often fifty percent).[12]

Proportion-of-purchase measures are easy to use and easy to implement. Their main disadvantage is that they over simplify the issue. For instance, more recent purchases are not weighted more heavily. Moreover, a high proportion of purchase can be the result of a zero-order process which means that condition (1) of the conceptual definition can be violated. Like purchase intention measures, the theoretical value of proportion-of-purchase measures is limited. However, the researcher may prefer such a measure because of practical considerations.

D2. Sequence-of-purchase measures

The second way to obtain an individual-oriented brand-loyalty measure, based on the individual consumers' purchase behavior is an inspection of their purchase patterns. A consistent bias in a purchase pattern towards a brand is an indication of brand loyalty. A simple procedure using purchase sequences is the "three in a row" criterion (Tucker (1964); McConnell (1968)). According to this measure, an individual is considered brand loyal if he buys a particular brand on three consecutive purchase occasions. These rules of thumb have similar (dis)advantages as the proportion-of-purchase measures discussed in D1.

A more advanced measure is related to the number of brand runs. A brand run is any sequence of consecutive purchases of the same brand. For example, a purchase sequence AABBBBABB of brand A and B consists of three brand runs. If brand loyalty exists, the number of brand runs will be small. An added benefit of the more advanced measures is that they can be used to study the order of the choice process (Bass et al. (1984); Massy et al. (1970)). For example, the binominal runs test uses the fact that, if the choice process is zero-order, the number of brand runs containing a particular brand is distributed hypergeometric. Using this result, the *expected* number of brand runs is calculated and is compared to *observed* number of runs. If the former is significantly greater than the latter, the process is not zero-order and condition (a) of the conceptual definition is satisfied. Hence, sequence-of-purchase measures are of special theoretical interest as they enable us to test an essential condition of brand loyalty.

E. Mixed measures

The four main categories of measurement methods cover different elements of the conceptual brand-loyalty construct. For example, behavioral measures stress the importance of actual purchase behavior to detect brand loyalty, but neglect the importance of cognitive processes. In contrast, attitudinal measures emphasize the importance of the cognitive processes, but ignore actual behavior.

Given these measures' one-sidedness, it seems reasonable to construct mixed measures. A number of measures have been developed that simultaneously incorporate attitudinal and behavioral elements (see e.g. Day (1969); Mehrothra (1984); Newman and Werbel (1973)). A promising approach in this respect is the dollar-metric method used by Pessemier (1959) and Raju, Srinivasan, and Lal (1990), among others. The idea of this measure is to determine the premium price a consumer is willing to pay for his favorite brand. If that price is high, the consumer is likely to be brand loyal. Since it is impossible to measure this premium by looking at actual price and purchase data, a laboratory experiment is needed. As such, data requirements may be expensive and inhibit the widespread use of the method. Moreover, it is questionable whether laboratory studies present valid representations of actual behavior.

IV. Discussion

Brand loyalty has been studied extensively for academic as well as practical reasons. As was emphasized in the introduction, a large proportion of loyal consumers is a competitive advantage for a brand. However, in order to manage brand loyalty effectively, good measurement methods are necessary. For that reason, this paper has focused on alternative operationalizations of the construct. So far, we have concentrated on the methodological characteristics of brand-loyalty measures, and have only given limited attention to their managerial usefulness. In this section we first point out some academic issues which have not yet been solved in satisfactory way. Next, we consider key issues for proper brand-loyalty research in applied marketing settings.

IV.a. Recommendations for marketing academics

Despite extensive research, many problems still have to be addressed before brand loyalty is fully understood. We stress two of them, namely: (1) an improvement of the adopted brand-loyalty measures, and (2) the construction of brand-loyalty measures for marketing practice.

Improvement of brand-loyalty measures

A main key to improve our understanding of brand loyalty is the development of a valid brand-loyalty measure. There is substantial agreement among researchers about the conceptual definition of brand loyalty. Since the work of Jacoby and Chestnut (1978), however, there seems to be no tendency in recent marketing studies to develop measures that incorporate more conditions mentioned by the conceptual definition than in previous operationalizations. This is probably due to the fact that: (1) the background of the researchers studying brand loyalty has differed considerably. Indeed, psychologists, economists, and statisticians have all studied the subject; and (2) a significant number of researchers claim that individual behavior is too complicated to explain, and therefore advocate the use of stochastic models to fit aggregated observed behavior rather then explaining individual differences in behavior.

From a theoretical point of view, an optimal measure should include attitudinal-, behavioral-, individual-, and brand-related components. The individual component may be obscured if aggregated measures are used. To reduce this drawback, the researcher

may search for homogeneous groups and examine each of them separately. Another possibility is the use of individual measures. The measures observed in the context of discrete-choice models offer therefore a promising opportunity to improve the validity of the brand-loyalty measures. However, thus far, these models have ignored the cognitive aspect, and have only considered actual purchase decisions.

Construction for marketing practice

Another major avenue for future brand-loyalty research is the development of a bridge between measures used in the academic marketing literature and measures used in marketing practice. Since the start of brand-loyalty research, the technical complexity of the methods to analyze brand loyalty has increased drastically. However, this complexity may hamper their widespread use in practical applications (Little (1970)). Moreover, due to budget- or time constraints marketing managers may even prefer a simpler measure over a theoretically better one. For these reasons, more research is needed on the consequences (e.g., in terms of predictive validity) of using simple rather than advanced measures.

IV.b. Recommendations to marketing managers

In this final section, we want to point out several key elements for proper brand-loyalty research by marketing managers, based on our theoretical discussion of brand-loyalty measures.

Carefully define the product category

Great care should be practised in adequately defining the product category. Indeed, this will determine which brands enter into the analysis, and will therefore influence the resulting brand-loyalty estimates. Put differently, one should apply the selected technique to the relevant problem.

Keep it simple

In applied marketing settings, it may be wise to use simple measures, as they are often cheaper and since they can provide results in a relatively short period of time. Moreover,

more complicated techniques often require higher-quality data. If these data are not available (or are too expensive to collect), increased measurement error may offset the theoretical advantages of the advanced methods. Also, theoretical research has not yet adequately shown the severity of the (potentially negative) consequences of using simple measures, as was indicated in section IV.a.

Be careful with *uni-dimensional measures*

The vast majority of brand-loyalty measures is uni-dimensional in the sense that they either emphasize the cognitive, behavioral, brand-related, or individual-related component of brand loyalty. Because of this, the validity of the measures used today is limited. The manager should always consider the specific limitations of the selected measurement method.

Select a brand-loyalty measure corresponding to the intended purpose

As every category of brand-loyalty measures emphasizes different elements of brand loyalty, no method is suitable for every intended purpose. Therefore, the method chosen should correspond to the purpose of the brand-loyalty study. If the manager wants to use brand loyalty for segmentation purposes an individual-oriented measure should be used. In this case attitudinal measures (general or at the product-category level) may be most appropriate. The stability of segments based on these measures is greater as they are based on preferences of consumers which are more robust to short-term fluctuations. When the marketing manager wants to investigate whether repeat buying is either due to inertia or brand loyalty he might use commitment measures. Finally, behavioral measures are more appropriate when the influence of marketing-mix variables on brand loyalty is important to the marketing manager. In this respect, measures related to discrete-choice models are particularly useful as they estimate brand loyalty at the individual level and offer the possibility to study the interaction between brand loyalty and marketing-mix variables.

Notes

[1] Construct validity means that the measure is measuring the concept it is supposed to measure. A detailed discussion about the different aspects of validity is beyond the scope of this paper. For more information about the topic, the reader is referred to Peter (1981).

[2] A process is first-order if the probability to choose a certain brand depends only on the previous purchase of the consumer. If more past purchases influence the current choice probability the process is said to be of higher order (e.g. of second-order if the last two purchases influence current brand choice).

[3] Until Day (1969), brand loyalty was measured almost exclusively as a behavioral construct. Then, in the beginning of the seventies, more attention was paid to the cognitive component of consumer behavior and attitudinal measures became quite popular. Nowadays, the use of attitudinal or behavioral measures depends on the purpose of the study. In the marketing-science literature there is a tendency to use behavioral measures. Part of this might be due to the increasing availability of scanner data.

[4] For example, we may consider an individual as brand loyal if the brand purchased most frequently is bought in more than fifty percent of the purchase occasions (Cunningham (1956a,b)). This operationalization results in an individual-oriented measure. However, we may also look at the proportion of consumers buying brand A most frequently and in more than fifty percent of the purchase occasions. Then a similar operationalization (i.e. the 50 % rule) results in a brand-oriented measure. Because it is usually employed in the first way, we will categorize this measure as individual-oriented.

[5] We refer the interested reader to Jacoby (1971) for a discussion on the mechanics involved in constructing such a scale.

[6] When it is assumed that *only* the last brand purchased affects the current purchases, we call the Markov process first-order. We refer to Lilien, Kotler, and Moorthy (1992) for a discussion on higher order Markov models.

[7] See Bayus (1992), Bultez ((1990a,b)), and Kannan and Sanshez (1994) for other applications and extensions of Colombo and Morrison's model.

[8] It is possible to relax this supposition and also account for heterogeneity within switching segments. This is worked out in more detail by Jain et al. (1990). Although it slightly changes the interpretation of some of the parameters, it does not alter the basic ideas of the method.

[9] Similar measures may also be derived from market shares using the stochastic preference model of Bass (1974).

[10] For expository purposes, we focus on the measure proposed by Guadagni and Little since their measure was the first effort to incorporate brand loyalty in a discrete choice model. Since then, the measure is used and discussed extensively in marketing literature (e.g. Gupta (1988); Tellis (1988)), and several refinements and extensions have been offered (Fader and Lattin (1993); Ortmeyer, Lattin, and Montgomery (1991)).

[11]   Consider for example an individual i with the purchase sequence ABBAA. For this individual $BL^i_A (5) = \alpha\, BL^i_A (4) + (1-\alpha).1$ and $BL^i_A (4) = \alpha BL^i_A (3) + (1-\alpha).0$. After making the appropriate substitutions, we are able to express $BL^i_A (5)$ as: $\alpha^3 BL^i_A (2) + (1-\alpha)$. In a similar way $BL^i_B (5)$ can be computed.

[12]   For slightly different operationalizations of this criterion, see e.g. Charlton and Ehrenberg (1976).

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