

# Marketing as Exchange

## A Theory of Transactions in the Marketplace

RICHARD P. BAGOZZI

*University of California, Berkeley*

Marketing thought has progressed through at least two stages in its brief history and appears to be at the threshold of a third and perhaps most decisive transformation. From its beginnings in the early part of this century until the late 1960s, marketing was more concerned with the technology for performing everyday activities in the marketplace than with the nature and adequacy of its conceptual underpinnings. This first stage was replaced with a number of attempts to create a marketing *Weltanschauung* through the application of paradigms from allied disciplines. Thus, scholars suggested that functionalist (Alderson, 1965), systems (Lazer, 1971), and decision-theory frameworks could be useful in building a theoretical base for the discipline. And, indeed, these approaches did much to provide an overall sense of what marketing is about. Unfortunately, the borrowed paradigms were not fully specified; the subject matter of the discipline was not well defined; and efforts were limited largely to broad descriptions or classificatory schemes. Very few testable hypotheses have been proposed, and no strong research traditions or schools of marketing thought have built upon these approaches. A lacuna still exists between problems found in the marketplace and our ability to understand and react effectively to them.

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In the early 1970s, however, a new theoretical perspective emerged in the discipline termed—depending on the author—the exchange, transaction, or dyadic paradigm. This viewpoint arose, in part, out of the intellectual ferment stimulated by Kotler and Levy (1969) in their radical conceptualization of marketing behavior as an activity found in virtually all organizations, groups, or collectivities. Briefly, the dyadic paradigm takes the two-party exchange relationship as its fundamental subject matter or phenomenon to be explained. The scientific problems defining the discipline then become a triad:

- (1) why do people and organizations engage in exchange relationships?
- (2) how are exchanges created, resolved, or avoided?
- (3) how should exchanges be created, resolved, or avoided?

Three points deserve mention as a commentary on this third and perhaps most significant stage in the development of marketing thought. First, the evolution of the meaning of marketing can best be described as a social construction where historical and political processes have shaped and continue to shape its form and substance (Bagozzi, 1976). The meaning of marketing, then, is a product of a double dialectic: one between the authority of past conceptualizations and the stimulus of new views and a second between competing schools of thought or paradigms, implying debate, conflict, power struggles, and the like. The first dialectic is relatively more objective in the sense that standards from the philosophy of science constrain the outcome of clashes between divergent ideas, while the second is somewhat more subjective in the sense that social interactions influence the prevailing view. Presently, there is evidence to suggest that a consensus is forming around exchange as the subject matter of the discipline, and an argument can be made for labeling marketing “the science of transactions” (Hunt, 1976: 25).

A second point to note is that the dyadic paradigm involves a major shift in perspective, a new way of looking at marketing behavior (Bagozzi et al., 1977; Bonoma and Bagozzi, 1977). No longer are buyers and sellers treated solely as isolated actors emitting or responding to stimuli. Rather, marketing behavior is now regarded as an inherently social activity where the outcomes of exchanges depend on bargaining, negotiation, power, conflict, and the shared meanings existing between buyer and seller. Significantly, complex relationships in the marketplace are modeled as sequences, networks, or systems

of dyadic exchanges. The shift in perspective occurs at both the level of the subject matter and the structure of explanation. Further, by beginning with the two-party relationship as the unit of analysis, the dyadic paradigm does not assume that marketing behavior can or should be reduced to the behavior of individual actors. Thus, the unresolved problem of reductionism in the behavioral sciences is not an issue in the paradigm.

A third point to stress is that the scientific base for the exchange paradigm is now being laid. A number of authors have explored the nature, context, and implications of exchange, though much work remains to be done in this regard (Kotler, 1972; Bagozzi, 1974a, 1975a, b, 1976; Levy and Zaltman, 1975; Bonoma and Bagozzi, 1977).

The major limitation with the exchange paradigm to date has been the absence of any formal theories for explaining exchanges. Although some work exists defining the elements of exchange relationships, little modeling of cause-and-effect processes has been done. This article is presented as a modest attempt to propose a formal theory of exchange. In doing so, *exchange is represented as a dynamic social process functioning under economic and psychological constraints*. The discussion begins with a brief treatment of the structure of exchange in order to provide background for the theory. Next, a theory of exchange behavior is derived that—while building upon both the “new home economics” and social influence paradigms—extends and departs from these models in important ways. The article closes with suggestions for improving the theory by relaxing assumptions and adding explanatory variables.

## THE STRUCTURE OF EXCHANGE

### THE PHENOMENON TO BE EXPLAINED

The principle dependent variable in the dyadic paradigm is the exchange relationship existing between social actors where social actors include people, groups, organizations, institutions, or collectivities. It is important to stress that the exchange relationship is an abstract entity existing between social actors. It is not designated by the properties of the actors in the relationship or even solely by the actions of those actors. Further, it is not, as sometimes thought, equivalent to a stimulus-response sequence of communication, rewards,

or punishments emanating from one actor, to a second actor, and back to the first. Rather, an exchange relationship is characterized by the connections, shared experiences, interdependencies, and social influence occurring between actors. These relationships are inferred from events, actions, or other observable phenomena and typically depend upon shared meanings mediating the exchange.

A number of constructs may be identified as measures of the exchange relationship. Perhaps the most common are the mutual outcomes experienced by the actors in a particular exchange. Outcomes may be monetary gains or losses, social rewards (e.g., approval, praise, status), or social punishments (e.g., prejudice, discrimination, ostracism). Again, these outcomes refer to the joint experiences of the dyad and not directly to each individual's sensations. The increase in sales or profits resulting from specific exchanges between the marketing research and sales departments of a firm would be an example of joint outcomes in this sense. A second type of construct serving as a measure of the exchange relationship is the shared affect or cognitive images held by a dyad (Foa and Foa, 1974). For example, one measure of the quality of the marital exchange might be the common joy or feelings of accomplishment felt by the couple as they interact in consumer decision-making processes. Finally, exchange relationships can be measured by variables constructed from the actual choices or actions committed by the dyad. This might entail measures of the degree of cooperation, competition, or conflict in the dyad or the duration or timing of actions including the formation, resolution, or dissolution of the relationship itself.

#### EXPLAINING EXCHANGE

Exchange relationships are hypothesized to be a function of three broad determinants: (1) the characteristics of the social actors, (2) the social influence exercised by the actors, and (3) the situation constraining the exchange. Each of these can independently or jointly affect the emergence, course, and outcomes of any exchange.

*Social actor variables.* The characteristics of the social actors influence exchanges in a variety of ways. One generic class of characteristics affects exchanges through the impact they have on the communication process and social influence occurring between the actors.

The relevant independent variables are generally labeled source characteristics and receiver characteristics (McGuire, 1969). Source characteristics include such variables as attraction, similarity, expertise, prestige, trustworthiness, and status (authority). Receiver characteristics entail such variables as self-confidence and self-esteem, background attributes (e.g., sex, race, religion, social class, intelligence) and certain personality traits. Because one is usually both source and receiver in any exchange, all of the characteristics may come into play in any particular transaction. In general, source and receiver characteristics influence exchanges through their ability to authenticate or deauthenticate the subjective expected utility associated with communicated threats, promises, warnings, or mendations (for a discussion of the processes and supporting evidence, see Tedeschi et al., 1973: 65-83).

A second way in which the characteristics of social actors influence exchanges is through the motivational and interpersonal orientations these actors bring to an exchange (Rubin and Brown, 1975: 197-213, 233-258). Research in bargaining and negotiation shows that the outcomes of exchange depend on the degree to which the parties (1) have a positive interest in the welfare of the other, (2) are oriented toward doing better than the other, (3) strive to achieve the maximum in individual gains, regardless of how the other does, and/or (4) are sensitive to interpersonal aspects of relationships with the other. Not only do social actors bring preconceived orientations to the exchange relationships they enter, but, through external pressures and the changing conditions in any particular exchange, these orientations ebb and flow in predictable ways with predictable impact on the exchange (Rubin and Brown, 1975).

*Social influence variables.* The second—and possibly most important—determinant of exchange outcomes is the social influence exercised by the actors. Social influence is construed here to consist of the specific actions, communications, and information transmitted between the parties in the transaction. Though social influence will most often be explicit, expressing the intentions, purposes, and desires of the actors, it can contain implicit messages, symbolizing covert social and psychological needs and prescriptions. Typically, social influence will imply a transfer of rewards and punishments between actors. Rewards and punishments might be physical (e.g., economic), psychological, or social in character. Tedeschi et al. (1973) have developed

a useful classification for the modes of influence based on whether a source of influence actually mediates reinforcements or not and whether influence is overt or covert. When a source of influence in an exchange actually mediates reinforcements without attempting to conceal these attempts, the mode of influence is termed either a threat if a punishment is sent or a promise if a reward is transmitted. Similarly, when a source does not actually mediate reinforcements (but either the target or a third party does) and no attempt is made to conceal the influence, the mode is termed either a warning if a punishment is implied or a commendation if a reward is implied. Persuasion is one example of this type of influence. In contrast, when a source directly mediates reinforcements but does so in a clandestine manner, the mode of influence is called reinforcement control. Ingratiation is an example. Finally, when a source does not directly mediate reinforcements but nevertheless disguises his or her manipulatory intentions, the mode of influence is known as information control. An extensive body of research exists in social psychology documenting the impact of social influence on exchange behaviors (Tedeschi et al., 1973). It is important to note that the effects of social influence are in addition to, or superimposed upon, both the impact of the characteristics of social actors in an exchange and the value of the objects exchanged.

Social influence is very much a dynamic process and can overcome factors normally tending to prevent or thwart exchanges as well as lead to premature disengagement of ongoing and seemingly trouble-free encounters. A growing body of research indicates that the course of any exchange will depend fundamentally on the level and nature of opening offers and counteroffers, the specific pattern of social negotiations (including the timing and magnitude of concessions and cooperative and intransigent responses), and the overall flow of the various modes of influence and their meaning to the actors (Rubin and Brown, 1975).

*Situational variables.* Situational contingencies represent the third class of determinants constraining exchanges. Indeed, the course and outcome of any exchange will not be determined entirely by the characteristics and actions of the parties to the transaction, but rather must operate within a physical, psychological, and social setting. At least three types of situational constraints may be identified. The conditions for exchange will be established first by the availability of alternative sources of satisfaction for one or more parties to the

exchange. Offers and counteroffers are not made in isolation but must take into account what the market will bear. Closely related to this is the state of the market in terms of the structure and conduct of potential parties to an exchange. Exchange relationships will vary depending on whether the situation is representative of perfect competition, oligopoly, bilateral monopoly, or other patterns of interaction. Similarly, multiple party exchanges will differ depending on the number of actors, their ability to form coalitions, and the relative strengths and resources held by the parties.

The physical and psychological setting represent a second class of situational constraints on exchanges. For example, the pressures of time, the number of formal and informal issues at hand, the pleasantness of surroundings, the type of communication media available, and the nature of the product/service/object to be exchanged all hamper or facilitate transactions in one way or another. Marketers are only now beginning to study these constraints.

Finally, perhaps the most important situational contingencies are the legal and normative settings surrounding an exchange. Because people behave in response to the prescriptions and proscriptions of laws and norms, these factors must be taken into account in any theory of exchange. Social sanctions or their absence play a particularly forceful role in the market place as witnessed by the diversity of behaviors across various cultures with respect to tipping, bribery, product safety, advertising practices, and black market activities, to name a few.

#### **LEVELS OF ANALYSIS AND THE RELATIVITY OF EXPLANATION**

The theory of exchange developed in this article is partly holistic and partly mechanistic, depending on the level of investigation chosen for inquiry. At the level of the dyad, which is taken as the basic unit of analysis, the perspective is holistic. That is, dyadic exchanges are modeled as functions of (1) the properties of entities both endogenous and exogenous to the dyad and (2) the relationships between the social actors defining the dyad and their connections to forces outside the dyad. In choosing the two-actor exchange relationship as the fundamental phenomenon to be explained, the theory is basically a social one, and the mechanistic assumption that exchanges are simply comprised of component parts of individuals to be analyzed separately is

not made. At the level of groups, organizations, or collectivities, however, the orientation is largely a mechanistic one in the sense that complex macromarketing behavior is viewed to be comprised of intricate relationships among dyads. To explain phenomena such as channels of distribution, cartels, or industry-government relationships, it is claimed that arrangements of dyads can be constructed through concepts of emergence, systems analysis, network theory, structuralism, or aggregation.

Any theory of exchange will depend upon the specific social actors chosen for study and the social setting in which the exchange occurs. The choice of a particular exchange to investigate will dictate which variables are to be endogenous and which are to be exogenous to that transaction. In this way, the explanation of exchange behavior rests, in part, on the specific unit of analysis under investigation. What is endogenous in one exchange relation may be exogenous in another. For example, the exchange between a salesperson and buyer may involve interpersonal conflict endogenous to the relationship yet be required to function under the exogenous constraints of norms and rules set by each actor's respective employer organizations. From the perspective of exchanges among organizations in channels of distribution, in contrast, the actual transactions among boundary spanning individuals (including the impact of organizational norms on the behavior of those individuals) would be regarded as endogenous for the case where the focus of interest is on, say, the structure of exchange relationships, the pattern of competition, or the performance of entire channels. At this latter level of analysis, an example of an exogenous determinant of exchange would be the political/economic environment.

The theory developed below applies to a specific class of exchange behaviors. It is intended to simultaneously explain both the exchanges among actors within a defined social unit and the transactions the unit has with other actors. Thus, for example, the theory is relevant to the relationships among family members and the interactions the family has with, say, salespeople. Similarly, the theory applies to the exchange relationships among actors in the buying center or the purchasing department and the transactions that these actors have with vendors.



## A THEORY OF EXCHANGE

Consider the situation consisting of a husband and wife dyad and the exchange relationships existing between the dyad and the sellers of goods and services. For purposes of analysis, the demand for goods and services by the dyad is divided into two sets of commodities: (1) focal goods or services ( $S_{SG}$ ) and (2) a composite construct ( $S_{OG}$ ) representing all other goods and services considered by the dyad. Given this state of affairs, a general theory is developed to explain both the exchanges occurring between husband and wife and those between the family unit and other social actors desiring to achieve a response from the family. The theory begins with the general framework of the "new theory of consumer behavior" as its foundation (Becker, 1965; Lancaster, 1971) and then introduces social psychological variables to better represent decision-making and cause-and-effect processes in transactions. As developed below, a number of important modifications and extensions are made to the new theory of consumer behavior in order to integrate the social psychological processes and make the theory testable. Finally, the system of economic, social, and psychological relations derived from the theory are represented in a single structural equation model consisting of theoretical constructs, operationalizations, and correspondence rules. The net result is a self-contained, deductive axiomatic theory of exchange behavior expressed as a system of causal relationships.

### DERIVATION OF THE THEORY

In their interactions with each other and with other social actors, the husband and wife are presumed to maximize

$$U_d = U(N, S_{SG}, S_{OG}) \quad [1]$$

subject to

$$Y = I_{NL} + wL = p_1 X_{SG} + p_2 X_{OG} \quad [2]$$

$$T = t + L \quad [3]$$

and given the following production functions

$$S_{SG} = f(t_{SG}/N, x_{SG}/N) \quad [4]$$

$$S_{OG} = f(t_{OG}, x_{OG}) \quad [5]$$

where  $U_d$  is the utility function of the husband-wife dyad,  $N$  is the total quantity of focal subjective goods desired by the husband and wife,  $S_{SG}$  is the satisfaction per good,  $S_{OG}$  is the total satisfaction from other goods and services,  $Y$  is lifetime money income (i.e., permanent income),  $I_{NL}$  is the dyad's nonlabor wealth,  $w$  is the average hourly market wage received by the dyad,  $L$  is the number of hours the dyad works throughout marriage,  $x_{SG}$  is the total number of tangible goods devoted to production of satisfaction from subjective goods,  $x_{OG}$  is the total number of other goods devoted to production of satisfaction from these goods,  $T$  is the dyad's life-span after marriage,  $t$  is the dyad's time available for home production, with  $t_{SG}$  the time input to  $S_{SG}$  and  $t_{OG}$  the time input to  $S_{OG}$ , and  $p_1$  and  $p_2$  are market prices of focal goods and other goods, respectively.<sup>1</sup> Although  $S_{SG}$  will be, in general, a vector of subjective goods and services, it is treated in the derivation below as a single subjective "commodity" for purposes of illustration. Examples of  $S_{SG}$  might include affective, cognitive, or conative mental events.<sup>2</sup>

Notice that the commodities comprising  $S_{SG}$  and  $S_{OG}$  are intangible entities in the minds of the husband and wife. It is hypothesized that the mutual satisfaction of the couple will be a function of these commodities. Thus, equation 1 expresses the idea that the outcome of exchanges between husband and wife and between the dyad and significant others will depend on the joint demand for certain abstract, yet subjectively felt, human needs. As developed near the end of the article,  $S_{SG}$  and  $S_{OG}$  are explicitly tied to observations through correspondence rules in order to make the theory testable. This is accomplished in part, through measures of subjective expected utility and other operationalizations of mental states. In so doing, the theory developed herein departs from the work of Becker (1965) who treats the commodities entering the utility function as strictly uninterpreted, non-observational constructs. Further, his theory is not testable as it stands because it employs production functions treating these commodities as purely abstract entities. As a result, the new "theory" of consumer behavior contains two interdependent stages of abstraction (i.e., a utility function and production functions) which are analytically

correct, given the assumptions, but which lack synthetic content and hence cannot serve as a basis for explanation (for a discussion of why laws of mathematics cannot serve as a basis for an explanatory science, see, for example, Carnap, 1966: ch. 1).

Equations 2 and 3 represent the budget constraints for money income and time, respectively. The former states that the amount of money spent on tangible goods and services used to produce  $S_{SG}$  plus the amount spent on tangible goods and services used to produce  $S_{OG}$  equals money income,  $Y$ . The latter states that the total time,  $T$ , for the couple is divided between leisure,  $t$ , and labor,  $L$ .

Equations 4 and 5 model the relationships between tangible goods and services on the one hand and subjective commodities on the other. The hypothesis is that the husband and wife combine goods and services with their time to "produce" the subjective goods  $S_{SG}$  and  $S_{OG}$ .

Taken together, equations 1-5 specify the initial assumptions in the theory, the decision rule used by the husband and wife in their exchanges, the constraints they face in their transactions, and the means they use to achieve satisfaction. Looking first at the assumptions as to the utility function and indifference curves, it is assumed that (a)  $U(N, S_{SG}, S_{OG})$  is continuous and has continuous first and second partial derivatives, (b) the indifference curves are strictly convex toward the origin and do not intersect, (c) decision-making is for a specified period of time, and (d) inputs to  $S_{OG}$  (i.e.,  $t_{OG}$  and  $x_{OG}$ ) do not jointly produce  $S_{SG}$ .<sup>3</sup> Next, the husband and wife are assumed to maximize their joint, subjective expected utility, though this assumption may be relaxed as discussed below. Third, although the constraints on the family are set by time, anticipated lifetime income, and the interaction between the prices and quantities of tangible goods and services demanded, the subjective commodities have no market prices, but rather exhibit "shadow" prices determined by their costs of production. Unlike Becker (1965), however, who assumes shadow prices to be strictly abstract entities, the theory in this article posits that shadow prices constitute perceived psychic and social costs. In this way, the mechanisms connecting the prices of subjective commodities to choice behaviors are explicitly modeled. Finally, it should be noted that the theory expressed in equations 1-5 models the husband and wife dyad as both a producing and consuming unit, and joint satisfaction is taken as the outcome of exchanges.

The interpretation of the theory up to this point is as follows. In order to achieve desired levels of satisfaction from the consumption of

goods and services, the husband and wife are assumed to interact with each other and the providers of goods and services. Through decision-making processes and interpersonal influence within the dyad and similar exchanges between the dyad and outsiders, it is posited that the husband and wife combine time and market goods and services to produce the theoretical construct termed "subjective satisfaction" which represents the joint, negotiated outcome of decision-making and exchange for the husband and wife. The entire exchange process occurs subject to the constraints on the dyad's resources of time and wealth. It should be stressed that the theory explains the behavior of individual family exchanges and is not an aggregate model explaining group or societal exchanges.

Given the above specification, the demand or desire for  $N$ ,  $S_{SG}$ , and  $S_{OG}$  can be easily calculated. It is assumed that the husband and wife desire to produce a combination of  $S_{SG}$  and  $S_{OG}$ , placing them at the highest level of satisfaction. Since the procedures are similar for deriving the demand for all three commodities, only the derivation for the demand of  $N$  will be shown here. Forming the Lagrangian, taking partial derivatives, and setting these equal to zero yields the following first-order conditions for a maximum:

$$V = U(N, S_{SG}, S_{OG}) + \lambda(\pi_1 NS_{SG} + \pi_2 S_{OG} - Y^*) \quad [6]$$

$$\frac{\partial V}{\partial N} = U_N + \lambda\pi_1 S_{SG} = 0 \quad [7]$$

$$\frac{\partial V}{\partial S_{SG}} = U_{S_{SG}} + \lambda\pi_1 N = 0 \quad [8]$$

$$\frac{\partial V}{\partial S_{OG}} = U_{S_{OG}} + \lambda\pi_2 = 0 \quad [9]$$

$$\frac{\partial V}{\partial \lambda} = \pi_1 NS_{SG} + \pi_2 S_{OG} - Y^* = 0 \quad [10]$$

where  $\lambda$  is a Langrangian multiplier ( $\lambda < 0$ ),  $\pi_1$  is the shadow price of  $S^* = NS_{SG} = f(t_{SG}, X_{FG})$ —the total amount of satisfaction from subjective goods,  $\pi_2$  is the shadow price of  $S_{OG}$ , and  $Y^*$  is the value of the dyad's real lifetime consumption (full wealth):

$$Y^* = \pi_1 NS_{SG} + \pi_2 S_{OG} = \pi_1 S^* + \pi_2 S_{OG}. \quad [11]$$

To find the differential for the demand for  $N$ , equaitons 7-10 must be totally differentiated first to produce:

$$\begin{bmatrix} U_{NN} & U_{NS_{SG} + \lambda \pi_1} & U_{NS_{OG}} & S_{SG} \pi_1 \\ U_{S_{SG}N + \lambda \pi_1} & U_{S_{SG}S_{SG}} & U_{S_{SG}S_{OG}} & N \pi_1 \\ U_{S_{OG}N} & U_{S_{OG}S_{SG}} & U_{S_{OG}S_{OG}} & \pi_2 \\ S_{SG} \pi_1 & N \pi_1 & \pi_2 & 0 \end{bmatrix} \begin{bmatrix} dN & -\lambda S_{SG} & 0 & 0 \\ dS_{SG} & -\lambda N & 0 & 0 \\ dS_{OG} & 0 & -\lambda & 0 \\ d\lambda & -NS_{SG} & -S_{OG} & 1 \end{bmatrix} = \begin{bmatrix} d\pi_1 \\ d\pi_2 \\ dY^* \\ \cdot \end{bmatrix} \quad [12]$$

Next, solving this system of equations for the vector of differentials yields:

$$\begin{bmatrix} dN \\ dS_{SG} \\ dS_{OG} \\ d\lambda \end{bmatrix} = \frac{1}{\Delta} \begin{bmatrix} \Delta_{11} & \Delta_{12} & \Delta_{13} & \Delta_{14} \\ \Delta_{21} & \Delta_{22} & \Delta_{23} & \Delta_{24} \\ \Delta_{31} & \Delta_{32} & \Delta_{33} & \Delta_{34} \\ \Delta_{41} & \Delta_{42} & \Delta_{43} & \Delta_{44} \end{bmatrix} \begin{bmatrix} -\lambda S_{SG} & 0 & 0 \\ \lambda N & 0 & 0 \\ 0 & -\lambda & 0 \\ -NS_{SG} & -S_{OG} & 1 \end{bmatrix} \begin{bmatrix} d\pi_1 \\ d\pi_2 \\ dY^* \end{bmatrix} \quad [13]$$

where  $\Delta$  is the determinant of the bordered Hessian matrix on the left of 12, and  $\Delta_{ij}$  are elements of the matrix which is the adjoint of the same bordered Hessian. From 13, with  $\pi_2$  held constant, the differential,  $dN$ , may be calculated as follows using Cramer's rule:

$$dN = 1/\Delta[-\lambda(S_{SG}\Delta_{11} - N\Delta_{21})d\pi_1 - \Delta_{41}(dY^* - NS_{SG}d\pi_1)] \quad [14]$$

Similar procedures can be used to obtain  $dS_{SB}$ ,  $dS_{OG}$ , and  $dS^*$  as follows:<sup>4</sup>

$$dS_{SG} = 1/\Delta[-\lambda(-S_{SG}\Delta_{12} + N\Delta_{22})d\pi_1 + \Delta_{42}(dY^* - NS_{SG}d\pi_1)] \quad [15]$$

$$dS_{OG} = 1/\Delta[-\lambda(S_{SG}\Delta_{13} - N\Delta_{23})d\pi_1 - \Delta_{43}(dY^* - NS_{SG}d\pi_1)] \quad [16]$$

$$dS^* = 1/\Delta[-\lambda(S_{SG}^2\Delta_{11} + N^2\Delta_{22} - 2NS_{SG}\Delta_{12}) + (-S_{SG}\Delta_{41} + N\Delta_{42})(dY^* - NS_{SG}d\pi_1)] \quad [17]$$

Equations 14-17 state that the demand for  $N$ ,  $S_{SG}$ ,  $S_{OG}$ , and  $S^*$  will be a function of the price of  $S^*$  (i.e.,  $\pi_1$ ) and full wealth,  $Y^*$ .

Finally, solving the first-order conditions for the Lagrangian multiplier,  $-\lambda$ , produces the following marginal utilities:

$$\frac{U_N}{\pi_1 S_{SG}} = \frac{U_{S_{SG}}}{\pi_1 N} = \frac{U_{S_{OG}}}{\pi_2} \quad [18]$$

These results show that the husband and wife, as a producing and consuming unit, equate the ratios of the marginal utilities of  $N$ ,  $S_{SG}$ , and  $S_{OG}$  to their respective marginal costs. Hence, the husband and wife compare and weigh satisfaction from the number and quality of commodities produced from time and focal goods with that achieved from other sources of satisfaction. In this way, the mutual outcomes from the intra- and extradyadic exchanges are maximized.

As a point of interpretation at this stage in the derivation, it should be noted that the theory does not explicitly model the social interaction processes within the dyad nor between the dyad and other social actors. Rather, it models the joint outcomes of these processes. Second, the role of social actor variables (discussed earlier) are assumed and not modeled directly. Third, no assumptions or modeling are done with respect to situational contingencies (except for the budget constraint equations) despite the obvious influence of these variables on behavior. Thus, the theory omits important determinants of exchange and is limited in scope. Perhaps the most serious shortcoming is the fact that many of its assertions can not be tested as the model

stands. These deficiencies must be corrected if one is to derive an explanatory theory of exchange.

#### REFINEMENT AND OPERAITONALIZATION OF THE THEORY

The overall goal is threefold. First, the objectives is to retain the rigor of the above deductive axiomatic theory. As it stands, the theory represents a modification and extension of the new theory of consumer behavior applied to exchange relationships. Second, the aim is to introduce social psychological processes in order to model exchange as a function of the characteristics of the actors, social influence, and the situation. This will be done by hypothesizing that five key variables in the theory— $N$ ,  $S_{SG}$ ,  $S_{OG}$ ,  $\pi_1$ , and  $Y^*$ —will be functions of psychological and social variables. Finally, the goal is to specify and operationalize a testable theory. This will be accomplished by suggesting specific operationalizations and positing a network of causal relationships in a structural equation system.

As an example of one specification implied by the theory, consider first the following equations relating the key subjective constructs in the theory to certain antecedent social and psychological variables suggested by contemporary research in the behavioral sciences:

$$N = f(\text{interpersonal attraction, power, conflict, degree of sharing, and so on between husband and wife and } \pi_1 \text{ and } Y^*) \quad [19]$$

$$S_{SG} = f(\text{interpersonal attraction, power, conflict, degree of sharing, and so on between husband and wife and } \pi_1 \text{ and } Y^*) \quad [20]$$

$$S_{OG} = f(\text{interpersonal attraction, power, conflict, mutuality, and so on between husband/wife unit and the providers of alternative sources of satisfaction and } \pi_1 \text{ and } Y^*) \quad [21]$$

$$\pi_1 = f(\text{norms, background characteristics, and past satisfaction of husband and wife}) \quad [22]$$

$$Y^* = f(\text{norms, background characteristics, and personality of husband and wife}) \quad [23]$$

Combined with the theory derived in equations 14-16, equations 19-23 might translate into the following system of linear relationships:

$$\begin{bmatrix} 1 & 0 & 0 & -\beta_1 & -\beta_2 \\ 0 & 1 & 0 & -\beta_3 & -\beta_3 \\ 0 & 0 & 1 & -\beta_5 & -\beta_6 \\ 0 & 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 0 & 1 \end{bmatrix} \begin{bmatrix} N \\ S_{SG} \\ S_{OG} \\ \pi_1 \\ Y^* \end{bmatrix} = \begin{bmatrix} \alpha_1 & \alpha_2 & \alpha_2 & \alpha_4 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \alpha_5 & \alpha_6 & \alpha_7 & \alpha_8 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \alpha_9 & \alpha_{10} & \alpha_{11} & \alpha_{12} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \alpha_{13} & \alpha_{14} & \alpha_{15} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \alpha_{16} & \alpha_{17} & 0 & \alpha_{18} & 0 & 0 & 0 \end{bmatrix} \begin{bmatrix} A_w \\ P_w \\ C_w \\ SH_w \\ A_b \\ P_b \\ C_b \\ M_b \\ NO \\ B \\ PS \\ PT \end{bmatrix} + \begin{bmatrix} \xi_1 \\ \xi_2 \\ \xi_3 \\ \xi_4 \\ \xi_5 \end{bmatrix} \quad [24]$$



where  $A$  is interpersonal attraction,  $P$  is power,  $C$  is conflict,  $w$  indicates "within the husband-wife dyad,"  $b$  signifies "between the husband-wife dyad and the providers of alternative sources of satisfaction,"  $SH$  is the degree of sharing between husband and wife,  $M$  is the degree of mutuality in interests between the couple and the providers of choice alternatives,  $NO$  stands for normative prescriptions,  $B$  represents background factors,  $PS$  are past satisfaction experiences of the couple,  $PT$  are personality traits of the couple,  $\beta_1 - \beta_6$  are parameters expressing relations among endogenous variables,  $\alpha_1 - \alpha_{18}$  are parameters relating endogenous to exogenous variables, and  $\zeta_1 - \zeta_5$  are errors in equations.

Equation 24 expresses causal relationships among the theoretical variables in the exchange theory developed earlier in the article. the variables represent "unobservable constructs," and the relationships constitute "nonobservational propositions," to use terminology from the philosophy of science. The magnitude and sign of parameters as well as the rationale for hypothesizing these connections depend on the particular component theory introduced. For instance, because an extensive body of behavioral research exists showing that interpersonal attraction will enhance the efficacy of communication between people (see, for example, Tedeschi et al., 1973), one would predict that the greater the  $A_w$ , the greater the perceived  $S_{SG}$ , (i.e.,  $\alpha_1 > 0$ ). Similarly, research can be found supporting the remaining relationships in equation 24 but are not explored here for simplicity. Also, other explanatory variables may be introduced, depending on the particular situation and one's theory.

The general structural equation system relating the five endogenous variables— $N$ ,  $S_{SG}$ ,  $S_{OG}$ ,  $\pi_1$ , and  $Y^*$ —to the antecedent psychological and social variables can be expressed as

$$B\eta = \Gamma\xi + \zeta \quad [25]$$

where  $B$  is a  $5 \times 5$  matrix of parameters expressing relations among the unobserved endogenous variables,  $\eta$  is a five-element vector of endogenous variables,  $\Gamma$  is a  $5 \times n$  matrix of parameters relating endogenous to exogenous variables,  $\xi$  is an  $n$  element vector of exogenous unobservable variables, and  $\zeta$  is a five-element vector of errors in equations.

Because the variables and propositions in equations 24 or 25 cannot be directly observed, it is necessary to tie at least a subset of the variables

to observations in order for the entire theory to be testable. This can be accomplished using what philosophers of science term correspondence rules. In particular, the general forms for representing the correspondence between (1) unobservable endogenous variables,  $\eta$ , and their measurements,  $y$ , and (2) unobservable exogenous variables,  $\xi$ , and their measurements,  $x$ , are, respectively:

$$y = \Lambda_y \eta + \epsilon \quad [26]$$

$$x = \Lambda_x \xi + \delta \quad [27]$$

where  $\Lambda_y$  and  $\Lambda_x$  are matrices of parameters connecting measurements to theoretical constructs, and  $\epsilon$  and  $\delta$  are vectors of errors in variables. For the endogenous constructs, and assuming two measurements for each construct as an illustration, the system of correspondence rules becomes:

$$\begin{bmatrix} y_1 \\ y_2 \\ y_3 \\ y_4 \\ y_5 \\ y_6 \\ y_7 \\ y_8 \\ y_9 \\ y_{10} \end{bmatrix} = \begin{bmatrix} \lambda_1 & 0 & 0 & 0 & 0 \\ \lambda_2 & 0 & 0 & 0 & 0 \\ 0 & \lambda_3 & 0 & 0 & 0 \\ 0 & \lambda_4 & 0 & 0 & 0 \\ 0 & 0 & \lambda_5 & 0 & 0 \\ 0 & 0 & \lambda_6 & 0 & 0 \\ 0 & 0 & 0 & \lambda_7 & 0 \\ 0 & 0 & 0 & \lambda_8 & 0 \\ 0 & 0 & 0 & 0 & \lambda_9 \\ 0 & 0 & 0 & 0 & \lambda_{10} \end{bmatrix} \begin{bmatrix} N \\ S_{SG} \\ S_{OG} \\ \pi_1 \\ Y^* \end{bmatrix} + \begin{bmatrix} \epsilon_1 \\ \epsilon_2 \\ \epsilon_3 \\ \epsilon_4 \\ \epsilon_5 \\ \epsilon_6 \\ \epsilon_7 \\ \epsilon_8 \\ \epsilon_9 \\ \epsilon_{10} \end{bmatrix} \quad [28]$$

The ten operationalizations,  $y_1 - y_{10}$ , represent measurements on subjective states of each husband-wife dyad as a unit of analysis. These might entail self-reports of the husband and wife combined to form a composite for the dyad, or they might consist of inferences made by an observer based on verbal reports or behavior of the couple. the measurements on  $N$  and  $S_{SG}$  refer to felt satisfaction (e.g., subjective expected utility) for the focal subjective goods produced by the husband and wife, while the measurements for  $S_{OG}$  indicate felt satisfaction for the

alternative subjective goods produced. The measurements of perceived cost,  $\pi_1$ , include felt psychic, social, and monetary costs anticipated or actually incurred in the production of  $S^*$ , while the measurements of full wealth,  $Y^*$ , encompass actual and anticipated labor and nonlabor income, as well as felt psychic and social assets. Similar comments apply for the system of correspondence rules connecting antecedent psychological and social constructs,  $\xi$ , to their respective measurements,  $x$ .

Procedures exist for estimating the parameters in equations 25-27 based on the maximum likelihood technique (Jöreskog and van Thillo, 1972). Moreover, the procedures yield a likelihood ratio  $\chi^2$  test for ascertaining the goodness-of-fit of any particular model. Bagozzi and Van Loo (1977) recently tested a portion of the theory derived herein to explain differential fertility in two lesser developed countries, Turkey and Mexico. Briefly, the theory hypothesized that fertility is a direct function of decision-making and exchange processes within the family and an indirect function of socioeconomic variables constraining these processes. In general, the theory was quite successful, explaining as much as 70% to 80% of the variance in the dependent variables, depending on the particular submodel tested.

## CONCLUSIONS

The theory developed herein can be improved in a number of ways. First, it is important to consider the decision rules that actors actually use in their transactions. The utility maximization assumption is a reasonable first approximation, but a better procedure would be to explicitly model other rules and the conditions under which they might be used. meeker (1971) suggests that altruism, group-gain, competition, status consistency, and reciprocity constitute possible decision rules, depending on the particular situation. Moreover, individual information processing criteria and social judgment theory represent potential lines of inquiry with respect to decision-making in exchange relationships.

Second, more research is needed on the structure of exchange. Although the social actor, influence, and situation variables point the way to a general conceptualization of the form of exchange relationships, refinements are needed in the theory of how these variables

actually affect exchanges. The questions of what constitutes rewards, punishments, and things of value and how do these entities influence behavior are particularly pressing issues, lest the theory be labeled a tautology.

Finally, the theory needs to be expanded to incorporate ongoing exchanges as they ebb and flow. Exchange behaviors exhibit a dynamism that risks being obscured by static analyses.

## NOTES

1. For purposes of analysis, in the budget constraint equations, the family's nonlabor wealth is taken as an exogenous variable. Also, to keep the derivation simple, only lifetime money income is represented as a resource constraint on the family. As an extension of the theory, one might want to represent also the psychic and social resources available to the couple as constraints. In the present theory, psychological and social forces are introduced later in the derivation as they arise in relation to subjective expected utility, perceived costs, social actor characteristics, social influence, and normative constraints. Finally, although time is introduced as a decision constraint, one might want to refine this further by hypothesizing the conditions and events in time which actually constrain decision-making and other forms of behavior. The author is presently working on these extensions and others for a future paper.

2. In the present theory, the conceptualization of commodities,  $S_{SG}$  and  $S_{OG}$ , is different than that suggested by either Becker (1965) or Lancaster (1971). For Becker (1965: 495), the "more basic commodities" which enter the utility function are ostensibly defined as things such as children or health care or activities such as seeing a play or sleeping. Becker treats these commodities as theoretical constructs which are never operationalized but which are analytically (and not synthetically) suggested to be functions of time and tangible goods. In general, one must criticize the author's definitions as being both vague (i.e., the range of object predicates forming the referential meaning of commodities has not been specified) and ambiguous. Further, because the commodities are never formally tied to observations, the theory is not strictly testable. For Lancaster (1971: 114), in contrast, commodities (i.e., "characteristics") are defined as "objective" and "universal" properties of goods or activities. Hence, commodities are not theoretical entities but are physical characteristics such as "size, shape, performance" or velocity. Moreover, Lancaster (1971) is careful to note that: "(t)he spirit of the whole analysis requires that personal reactions are reactions to the characteristic, not reactions about what the characteristic is. . . . Thus we commence our search for characteristics of a good from the good itself, not from people's reactions to it." In opposition to both Becker and Lancaster, the present theory defines the commodities entering the utility function as psychological constructs or mental events. These theoretical variables are then tied formally to observations through correspondence rules. Tangible goods and services and time are hypothesized to have meaning for the consumer through their combination as subjective goods in the production function. Drawing on classic distinctions in

psychology, the commodities are defined as cognitions (e.g., perceived means-ends relationships), affect (e.g., emotional reactions towards goods), and personal behavioral predispositions (e.g., an intention to purchase a particular good). The full derivation and interpretation of commodities,  $S_{SG}$  and  $S_{OG}$ , are subjects for another paper by the author.

3. Henderson and Quandt (1971) present the classical assumptions for the utility function and indifference curves. With  $z = (S_{SG}, S_{OG})$ , the assumptions in the present theory may be more formally expressed as follows (Lancaster, 1971: 20-21):

- (1) The consumer has a complete quasi-ordering over the set of all possible characteristics collections. Using the symbols  $P$  ("preferred to")  $\bar{P}$  ("not preferred to"),  $I$  ("indifferent between"), this requires, in particular, that:
  - (a) If  $z^1 P z^2$  and  $z^2 P z^3$ , then  $z^1 P z^3$  (*transitivity*), with equivalents for the relationships  $\bar{P}$  and  $I$ .
  - (b) For every pair of vectors  $z^1, z^2$ , either  $z^1 P z^2$  or  $z^2 \bar{P} z^1$  (*completeness*).
- (2) For any characteristics collections  $z^*$ , the upper and lower preference sets,  $\{z \mid z^* \bar{P} z\}$  and  $\{z \mid z \bar{P} z^*\}$  are closed (*continuity*).
- (3) For any two collections  $z^1, z^2$  such that  $z^1 I z^2$ , any strong convex combination of  $z^1$  and  $z^2$  (i.e.,  $z^* = \lambda z^1 + (1-\lambda)z^2, 0 < \lambda < 1$ ) is preferred to either  $z^1$  or  $z^2$  (*strict convexity*).
4. Here the following differential equation property has been used to obtain  $dS^*$ :

$$dS^* = S_{SG}dN + NdS_{SG}$$

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